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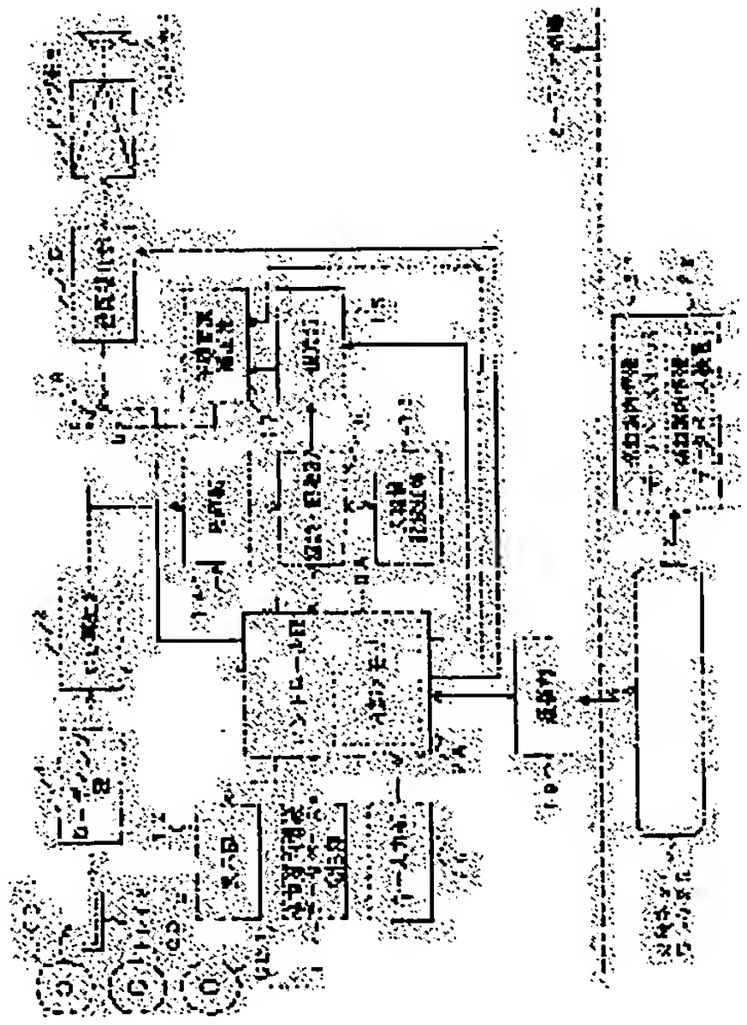
(54) REPRODUCING DEVICE, RECORDING DEVICE, COMPUTER PROGRAM, AND STORAGE MEDIUM IN WHICH COMPUTER PROGRAM IS RECORDED

(57)Abstract:
PROBLEM TO BE SOLVED: To automatically perform tone quality compensation suitable for music genre of reproducing music without selecting the music genre by a user every time reproducing music is changed.
SOLUTION: A control section 8A stores tone quality compensation data for each music genre in an internal memory 9A. When some music CD11 is set to a CD reproducing section 2, TOC information is read and intrinsic discrimination information of a CD is prepared by the prescribed calculation from TOC information. Then, the music genre of each music of the CD11 is retrieved from a music guide information data base server 21 installed on a public network. When some music is reproduced in the CD reproducing section 2, the control section 8A sets optimum tone quality compensation data corresponding to the music genre retrieved previously for reproducing the music to a tone quality compensation section 10 and performs tone quality compensation in accordance with the music genre.



* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1]
A recording-medium reproduction means which reads management information, or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded, and carries out a reproducing output,
A search means to search musical piece notice information of a musical piece recorded on a recording medium from a musical piece guidance information database which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and contains a music genre by using this identification information as a search key from predetermined information read in a recording medium,
A compensation means which performs tone quality or sound field correction to a music signal,
Optimal tone quality according to music genre or amendment data of an acoustic field is memorized to an amendment data storage means, A control means to which read tone quality corresponding to a music genre of a playback musical piece, or amendment data of an acoustic field, set it as a compensation means using music genre information on musical piece notice information searched with a search means, and amendment of tone quality or an acoustic field is made to carry out,
Playback equipment characterized by preparation ******.
[Claim 2]
A search means was made to perform a search to a musical piece notice information database server installed on an external network,
The playback equipment according to claim 1 by which it is characterized.
[Claim 3]
Match said search key and musical piece notice information, have a memorizable musical piece guidance information database memory measure, and a search means, When it searches for a musical piece guidance information database memory measure first and search goes wrong, while performing a search to a musical piece notice information database server installed on a network, When it succeeded in search, a search key and musical piece notice information are matched, and it was made to register with a musical piece guidance information database memory measure.
The playback equipment according to claim 1 by which it is characterized.
[Claim 4]
An identification information preparing means which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium,
An alter operation means which carries out alter operation of musical piece notice information containing a music genre of each musical piece recorded on a recording medium,
A registration means to match musical piece notice information inputted by an alter operation means with identification information created by an identification information preparing means, and to make it register into a musical piece guidance information database memory measure,
The playback equipment according to claim 1 or 3 characterized by preparation ******.
[Claim 5]
A recording-medium reading means which reads management information and a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were

recorded,
A search means to search musical piece notice information corresponding to a search key from a musical piece guidance information database which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and contains a music genre by using this identification information as a search key from predetermined information read in a recording medium,
A recording device which records a music signal read in a recording medium on other recording media, matches music genre information on a record musical piece with a music signal, and records it together using music genre information on musical piece notice information searched with a search means in this case,
A recorder characterized by preparation ******.
[Claim 6]
A search means was made to perform a search to a musical piece notice information database server installed on an external network,
The recorder according to claim 5 by which it is characterized.
[Claim 7]
Match said search key and musical piece notice information, have a memorizable musical piece guidance information database memory measure, and a search means, When it searches for a musical piece guidance information database memory measure first and search goes wrong, while performing a search to a musical piece notice information database server installed on a network, When it succeeded in search, a search key and musical piece notice information are matched, and it was made to register with a musical piece guidance information database memory measure.
The recorder according to claim 5 by which it is characterized.
[Claim 8]
An identification information preparing means which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium,
An alter operation means which carries out alter operation of musical piece notice information containing a music genre of each musical piece recorded on a recording medium,
A registration means to match musical piece notice information inputted by an alter operation means with identification information created by an identification information preparing means, and to make it register into a musical piece guidance information database memory measure,
The recorder according to claim 5 or 7 characterized by preparation ******.
[Claim 9]
A reproduction means which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece, and carries out a reproducing output,
A compensation means which performs amendment of tone quality or an acoustic field to a music signal,
A control means to which have memorized optimal tone quality according to music genre, or amendment data of an acoustic field to an amendment data storage means, read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out,
The recorder according to claim 5 characterized by preparation ******.
[Claim 10]
A reproduction means which reads a music signal and corresponding music genre information in a recording medium recorded with music genre information to which a music signal corresponds per musical piece, and carries out a reproducing output,
A compensation means which performs amendment of tone quality or an acoustic field to a music signal,
A control means to which have memorized optimal tone quality according to music genre, or amendment data of an acoustic field to an amendment data storage means, read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out,
Playback equipment characterized by preparation ******.
[Claim 11]
A recording-medium reading means which reads a music signal in a recording medium with which a music

signal of 1 or two or more musical pieces was recorded,
An alter operation means which carries out alter operation of a music genre of a musical piece,
A recording device which records a music signal read in a recording medium on other recording media, matches with a music signal music genre information inputted by an alter operation means, and records it together in this case,
A recorder characterized by preparation ******.
[Claim 12]
A reproduction means which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece, and carries out a reproducing output,
A compensation means which performs amendment of tone quality or an acoustic field to a music signal,
A control means to which have memorized optimal tone quality according to music genre, or amendment data of an acoustic field to an amendment data storage means, read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out,
The recorder according to claim 11 characterized by preparation ******.
[Claim 13]
Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded,
Processing which searches musical piece notice information of a musical piece recorded on a recording medium from a musical piece guidance information database which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium, and contains a music genre by using this identification information as a search key,
Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, Processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a playback musical piece in a recording medium, or amendment data of an acoustic field using music genre information on musical piece notice information searched previously,
****** -- a computer program making it like.
[Claim 14]
In retrieval processing, it was made to perform a search to a musical piece notice information database server installed on an external network,
The computer program according to claim 13 by which it is characterized.
[Claim 15]
First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search went wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeded in search, a search key and musical piece notice information are matched, and it was made to memorize to a musical piece guidance information database memory measure.
The computer program according to claim 13 by which it is characterized.
[Claim 16]
From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created,
Processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an alter operation means and identification information created by identification information creation processing, and is made to register into a musical piece guidance information database memory measure is included,
The computer program according to claim 13 or 15 by which it is characterized.
[Claim 17]
Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded,
Processing which searches musical piece notice information corresponding to a search key from a musical piece guidance information database which creates peculiar identification information of a recording medium,

or peculiar identification information of a musical piece unit in a recording medium, and contains a music genre by using this identification information as a search key from predetermined information read in a recording medium,
Processing which records a music signal read in a recording medium on other recording media, matches music genre information on a record musical piece with music data using music genre information on musical piece notice information previously searched at this time, and is made to record together,
****** -- a computer program making it like.
[Claim 18]
In retrieval processing, it was made to perform a search to a musical piece notice information database server installed on an external network,
The computer program according to claim 17 by which it is characterized.
[Claim 19]
First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search went wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeded in search, a search key and musical piece notice information are matched, and it was made to memorize to a musical piece guidance information database memory measure.
The computer program according to claim 17 by which it is characterized.
[Claim 20]
From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created,
Processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an alter operation means and identification information created by identification information creation processing, and is made to register into a musical piece guidance information database memory measure is included,
The computer program according to claim 17 or 19 by which it is characterized.
[Claim 21]
Processing which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece,
Carry out the reproducing output of the music signal read in a recording medium besides the above, and In this case. Processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre,
****** -- the computer program according to claim 17 making it like.
[Claim 22]
Processing which reads a music signal and corresponding music genre information in a recording medium recorded with music genre information to which a music signal corresponds per musical piece,
Processing which carries out the reproducing output of the music signal read in a recording medium, and carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre in this case,
****** -- a computer program making it like.
[Claim 23]
Processing which reads a music signal in a recording medium with which a music signal of 1 or two or more musical pieces was recorded,
Processing which records a music signal read in a recording medium on other recording media, matches with a music signal music genre information on a record musical piece inputted by an alter operation means, and records it together in this case,
****** -- a computer program making it like.
[Claim 24]
Processing which reads a music signal and corresponding music genre information in a recording medium

besides the above recorded with music genre information to which a music signal corresponds per musical piece,
Processing which carries out the reproducing output of the music signal read in a recording medium, and carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre in this case,
****** -- the computer program according to claim 23 making it like.
[Claim 25]
Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded,
Processing which searches musical piece notice information of a musical piece recorded on a recording medium from a musical piece guidance information database which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium, and contains a music genre by using this identification information as a search key,
Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, Processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a playback musical piece in a recording medium, or amendment data of an acoustic field using music genre information on musical piece notice information searched previously,
****** -- a storage which recorded a computer program making it like.
[Claim 26]
In retrieval processing, it was made to perform a search to a musical piece notice information database server installed on an external network,
A storage which recorded the computer program according to claim 25 by which it is characterized.
[Claim 27]
First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search went wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeded in search, a search key and musical piece notice information are matched, and it was made to memorize to a musical piece guidance information database memory measure.
A storage which recorded the computer program according to claim 25 by which it is characterized.
[Claim 28]
From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created,
Processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an alter operation means and identification information created by identification information creation processing, and is made to register into a musical piece guidance information database memory measure is included,
A storage which recorded the computer program according to claim 25 or 27 by which it is characterized.
[Claim 29]
Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded,
Processing which searches musical piece notice information corresponding to a search key from a musical piece guidance information database which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and contains a music genre by using this identification information as a search key from predetermined information read in a recording medium,
Processing which records a music signal read in a recording medium on other recording media, matches a music genre of a record musical piece with a music signal using music genre information on musical piece notice information previously searched at this time, and is made to record together,
****** -- a storage which recorded a computer program making it like.
[Claim 30]

In retrieval processing, it was made to perform a search to a musical piece notice information database server installed on an external network,
A storage which recorded the computer program according to claim 29 by which it is characterized.
[Claim 31]
First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search went wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeded in search, a search key and musical piece notice information are matched, and it was made to memorize to a musical piece guidance information database memory measure.
A storage which recorded the computer program according to claim 29 by which it is characterized.
[Claim 32]
From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created,
Processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an alter operation means and identification information created by identification information creation processing, and is made to register into a musical piece guidance information database memory measure is included,
A storage which recorded the computer program according to claim 29 or 31 by which it is characterized.
[Claim 33]
Processing which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece,
Carry out the reproducing output of the music signal read in a recording medium besides the above, and In this case. Processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre,
****** -- a storage which recorded the computer program according to claim 29 making it like.
[Claim 34]
Processing which reads a music signal and corresponding music genre information in a recording medium recorded with music genre information to which a music signal corresponds per musical piece,
Processing which carries out the reproducing output of the music signal read in a recording medium, and carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre in this case,
****** -- a storage which recorded a computer program making it like.
[Claim 35]
Processing which reads a music signal in a recording medium with which a music signal of 1 or two or more musical pieces was recorded,
Processing which records a music signal read in a recording medium on other recording media, matches with a music signal music genre information on a record musical piece inputted by an alter operation means, and records it together in this case,
****** -- a storage which recorded a computer program making it like.
[Claim 36]
Processing which reads a music signal and corresponding music genre information in other recording media recorded with music genre information to which a music signal corresponds per musical piece,
Processing which carries out the reproducing output of the music signal read in a recording medium, and carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre in this case,
****** -- a storage which recorded the computer program according to claim 35 making it like.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]
This invention relates to the storage which recorded playback equipment, the recorder, the computer program, and the computer program, It is related with the storage which recorded the playback equipment, the recorder, computer program, and computer program which could be made to make easy the tone quality or sound field correction doubled especially with the music genre of the musical piece.
[0002]
[Description of the Prior Art]
The music signal by which 1 or two or more musical pieces were digitized is recorded on the sauce media called CD (compact disk) with the management information called TOC (Table Of Contents) information. An example of the audio equipment which plays CD is shown in drawing 15. 1 is CD, two are a CD reproduction part, the TOC information recorded on CD with which it was loaded from the outside is read and outputted, or the reproducing output of the music signal by which digital recording was carried out to CD is read and carried out. The tray on which 3 puts CD1, and 4 CD1 which appeared in the tray 3 to CD reproduction part 2 Loading / loading part which carries out unloading, The amplifier part to which 5 performs power amplification of a music signal, the loudspeaker which drives 6 with the output of the amplifier part 5, the key input section in which 7 has the PLAY key, a direct song selection key, etc., and 8 are control sections, and manage overall reproduction control.
[0003]
If the opening/closing key (not shown) provided in the tray 3 is pressed and open operation is carried out, After the loading part 4 carries out unloading movement of the tray 3 to the exterior of apparatus and a user puts CD1 on the tray 3, When the opening/closing key is pressed and closing operation is carried out, the loading part 4 carries out loading movement of the tray 3 inside apparatus, and makes CD1 set to CD reproduction part 2. If CD1 is set to CD reproduction part 2, the control section 8 controls CD reproduction part 2, makes TOC information read, is inputted, and is stored temporarily at the internal memory 9. If the PLAY key is pressed after controlling CD reproduction part 2, making it reproduce sequentially from the first musical piece and arbitrary desired music's selecting a song by the direct song selection key of the key input section 7, if the PLAY key was pressed by the key input section 7 and ordinary reproduction was directed, CD reproduction part 2 is controlled with reference to TOC information, and it is made to play after making the starting position of desired music search (refer to JP,2000-090650,A as [In addition] related literature of a CD reproduction device).
[0004]
By the way, from CD1, depending on the music genre of a musical piece, low-pass is unsatisfactory, or a high region is [case played as it was] conspicuous too much, and it is sufficient, and sometimes carries out. It is sometimes unsatisfactory [of an acoustic field / of reverberation], or superfluous.
providing the sound-quality-correction part which performs sound quality correction of a music signal like the numerals 10 of drawing 15 as this measure -- the control section 8 -- the internal memory 9 -- music genres (a lock, pop, a classic, etc.) -- optimal another sound-quality-correction data (frequency characteristic data) is memorized. If a music genre selection key is provided in the key input section 7 and a user chooses the music genre of a reproduction musical piece, It is possible to make it make the sound quality correction which read the sound-quality-correction data corresponding to the music genre as which the control section 8 was

chosen, set it as the sound-quality-correction part 10, and was suitable for the music genre of the reproduction musical piece perform.
Sound field correction can be made to perform similarly according to the selected music genre about an acoustic field.
[0005]
[Problem(s) to be Solved by the Invention]
However, in the above-mentioned audio equipment, whenever a reproduction musical piece changes, a user has to direct a music genre, and the problem that operation is troublesome remains.
Whenever a reproduction musical piece changes, even if a user does not choose a music genre, this invention, It sets it as the purpose to provide the storage which recorded the playback equipment, the recorder, computer program, and computer program which enabled it to hang tone quality or sound field correction suitable for the music genre of a reproduction musical piece.
[0006]
[Means for Solving the Problem]
A recording-medium reproduction means which reads management information, or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded in the playback equipment according to claim 1, and carries out a reproducing output, From predetermined information read in a recording medium, create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and this identification information is used as a search key, A search means to search musical piece notice information of a musical piece recorded on a recording medium from a musical piece guidance information database containing a music genre, Optimal tone quality according to music genre or amendment data of an acoustic field is remembered to be a compensation means which performs tone quality or sound field correction to a music signal to an amendment data storage means, It is characterized by having a control means to which read tone quality corresponding to a music genre of a playback musical piece, or amendment data of an acoustic field, set it as a compensation means using music genre information on musical piece notice information searched with a search means, and amendment of tone quality or an acoustic field is made to carry out.
[0007]
Claim 2 is characterized by a search means performing a search in claim 1 to a musical piece notice information database server installed on an external network, and claim 3 equips claim 1 with the following.
Match said search key and musical piece notice information, have a memorizable musical piece guidance information database memory measure, and a search means, When it searches for a musical piece guidance information database memory measure first and search goes wrong, while performing a search to a musical piece notice information database server installed on a network, When it succeeded in search, a search key and musical piece notice information are matched, and it was made to register with a musical piece guidance information database memory measure.
An identification information preparing means which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information by which it is characterized, and which claim 4 read in a recording medium in claim 1 or claim 3.
An alter operation means which carries out alter operation of musical piece notice information containing a music genre of each musical piece recorded on a recording medium, and a registration means to match musical piece notice information inputted by an alter operation means with identification information created by an identification information preparing means, and to make it register into a musical piece guidance information database memory measure.

[0008]
A recording-medium reading means which reads management information and a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded in the recorder according to claim 5, From predetermined information read in a recording medium, create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and this identification information is used as a search key, A search means to search musical piece notice information corresponding to a search key from a musical piece

guidance information database containing a music genre, It is characterized by having a recording device which records a music signal read in a recording medium on other recording media, matches music genre information on a record musical piece with a music signal, and records it together using music genre information on musical piece notice information searched with a search means in this case.
[0009]
In [claim 6 is characterized by a search means performing a search in claim 5 to a musical piece notice information database server installed on an external network, and] claim 5 claim 7, Match said search key and musical piece notice information, have a memorizable musical piece guidance information database memory measure, and a search means, When it searches for a musical piece guidance information database memory measure first and search goes wrong, while performing a search to a musical piece notice information database server installed on a network, In [it is characterized by matching a search key and musical piece notice information, and making it register with a musical piece guidance information database memory measure, when it succeeds in search, and] claim 5 or claim 7 claim 8, An identification information preparing means which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium, An alter operation means which carries out alter operation of musical piece notice information containing a music genre of each musical piece recorded on a recording medium, and a registration means to match musical piece notice information inputted by an alter operation means with identification information created by an identification information preparing means, and to make it register into a musical piece guidance information database memory measure, It is characterized by preparation ****** and claim 9 from a recording medium besides the above recorded in claim 5 with music genre information to which a music signal corresponds per musical piece. A reproduction means which reads and carries out the reproducing output of a music signal and the corresponding music genre information, Optimal tone quality according to music genre or amendment data of an acoustic field is remembered to be a compensation means which performs amendment of tone quality or an acoustic field to a music signal to an amendment data storage means, It is characterized by having a control means to which read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out.
[0010]
The playback equipment according to claim 10 is provided with the following.
A reproduction means which reads a music signal and corresponding music genre information in a recording medium recorded with music genre information to which a music signal corresponds per musical piece, and carries out a reproducing output.
A compensation means which performs amendment of tone quality or an acoustic field to a music signal.
A control means to which have memorized optimal tone quality according to music genre, or amendment data of an acoustic field to an amendment data storage means, read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out.

[0011]
The recorder according to claim 11 is provided with the following.
A recording-medium reading means which reads a music signal in a recording medium with which a music signal of 1 or two or more musical pieces was recorded.
An alter operation means which carries out alter operation of a music genre of a musical piece.
A recording device which records a music signal read in a recording medium on other recording media, matches with a music signal music genre information inputted by an alter operation means, and records it together in this case.

A reproduction means which claim 12 reads a music signal and corresponding music genre information in a recording medium besides the above recorded in claim 11 with music genre information to which a music signal corresponds per musical piece, and carries out a reproducing output, Optimal tone quality according to music genre or amendment data of an acoustic field is remembered to be a compensation means which performs amendment of tone quality or an acoustic field to a music signal to an amendment data storage means, It is characterized by having a control means to which read tone quality corresponding to a music genre of a

reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out.
[0012]
In a computer program (storage which recorded a computer program) given in claim 13 (25). Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded, Create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium, and this identification information is used as a search key, Processing which searches musical piece notice information of a musical piece recorded on a recording medium from a musical piece guidance information database containing a music genre, Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a playback musical piece in a recording medium, or amendment data of an acoustic field using music genre information on musical piece notice information searched previously.
[0013]
In claim 13 (25), claim 14 (26) in retrieval processing. In [it is characterized by performing a search to a musical piece notice information database server installed on an external network, and] claim 13 (25) claim 15 (27), First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search goes wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeds in search, In [it is characterized by matching a search key and musical piece notice information, and making it memorize to a musical piece guidance information database memory measure, and] claim 13 (25) or claim 15 (27) at claim 16 (28), From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created, It is characterized by including processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an alter operation means, and identification information created by identification information creation processing, and is made to register into a musical piece guidance information database memory measure.
[0014]
In a computer program (storage which recorded a computer program) given in claim 17 (29). Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded, From predetermined information read in a recording medium, create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and this identification information is used as a search key, Processing which searches musical piece notice information corresponding to a search key from a musical piece guidance information database containing a music genre, It is characterized by performing processing which matches music genre information on a record musical piece with music data and on which it is made to record together using music genre information on musical piece notice information that recorded a music signal read in a recording medium on other recording media, and it was previously searched at this time.
[0015]
In claim 18 (30), in claim 17 (29), in retrieval processing. In [it is characterized by performing a search to a musical piece notice information database server installed on an external network, and] claim 17 (29) at claim 19 (31), First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search goes wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeds in search, In [it is characterized by matching a search key and musical piece notice information, and making it memorize to a musical piece guidance information database memory measure, and] claim 17 (29) or claim 19 (31) at claim 20 (32), From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created, It is characterized by including processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an

alter operation means, and identification information created by identification information creation processing, and is made to register into a musical piece guidance information database memory measure, Processing which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece in claim 17 (29) in claim 21 (33), Carry out the reproducing output of the music signal read in a recording medium besides the above, and In this case. It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre.

[0016]

In a computer program (storage which recorded a computer program) given in claim 22 (34). Processing which reads a music signal and corresponding music genre information in a recording medium recorded with music genre information to which a music signal corresponds per musical piece, Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field.

[0017]

In a computer program (storage which recorded a computer program) given in claim 23 (35). Processing which reads a music signal in a recording medium with which a music signal of 1 or two or more musical pieces was recorded, It is characterized by performing processing which records a music signal read in a recording medium on other recording media, matches with a music signal music genre information on a record musical piece inputted by an alter operation means, and records it together in this case.

Processing which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece in claim 23 (35) in claim 24 (36), Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field.

[0018]

It may be made to create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from all or a part of management information read in a recording medium, for example in claims 1, 4, 5, 8, 13, 16, 17, 20, 25, 28, 29, and 32.

In claims 5, 11, 17, 23, 29, and 35, when recording a music signal on other recording media, an incompressible music signal may be compressed and recorded.

In claims 9, 10, 12, 21, 22, 24, 23, 34, and 36, when a music signal read from a recording medium is compressed, it elongates with an expansion system corresponding to compression technology, and a music signal is reproduced. It may be made to amend signal data missing by compression after extension.

[0019]

[Embodiment of the Invention]

Next, a 1st embodiment concerning this invention is described with reference to drawing 1. Drawing 1 is a block diagram showing the composition of the audio equipment concerning this invention, and the same numerals are given to the same component part as drawing 15.

1_1, 1_2, 1_3, and .. are CDs whose user stock has been recorded, respectively, TOC information is recorded on the TOC area, it is incompressible and the digital data of the music signal of 1 or two or more musical pieces is recorded on the program area. 2 is a CD reproduction part, it reads and outputs the TOC information recorded on CD with which it was loaded from the outside, or reads the digital data of the music signal recorded on CD, and carries out the reproducing output of the music signal (here, it is considered as a digital music signal). The tray on which 3 puts $CD1_i$, and 4 $CD1_i$ which appeared in the tray 3 to CD reproduction part 2 Loading / loading part which carries out unloading, The amplifier part to which 5 performs power amplification of a music signal (analog musical signal), the loudspeaker which drives 6 with the output of the

amplifier part 5, The PLAY key for CD for 7A being a key input section and directing the ordinary reproduction of CD1 $_i$, and direct song selection playback of CD1 $_i$, The REC key for having a direct song selection key for CD, and also directing the sound recording to the large capacity recording medium which comprised a hard disk later mentioned from CD1 $_i$, The sound recording compression mold type selection key which chooses the sound recording compression mold type at the time of recording, the music genre of a musical piece, It has a direct song selection key for large capacity recording media for choosing a request musical piece from the letter key which inputs a title etc., and the musical piece recorded by the large capacity recording medium, and making it play, and the PLAY key for large capacity recording media.

[0020]

11 is the musical piece guidance information database storage parts store which comprised a hard disk, semiconductor memory, etc., Musical piece notice information, such as a music genre for every musical piece of CD and a title, can be matched with peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD, and can be memorized (TNO shows a track number). Peculiar identification information ID (CD) of CD is information which distinguishes each CD uniquely, and is created by a predetermined operation from all or a part of TOC information of CD. Peculiar identification information ID (CD-TNO) for every musical piece of CD is created by adding TNO (track number) of a musical piece to peculiar identification information ID (CD) of CD at the end. The musical piece guidance information database storage parts store 11 is referred to immediately after setting CD1 $_i$ to CD reproduction part 2. Musical piece notice information as which the user specified and inputted the track number into the musical piece guidance information database storage parts store 11, such as a music genre and a title, Or the control section mentioned later uses peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD as a search key, and the result obtained from the external musical piece notice information database server by searching is registered.

[0021]

The music genre for every musical piece of CD1 $_i$ which 12 is an indicator and was set to CD reproduction part 2, Match with a track number, display a title or The inside of CD1 $_i$, The track number of the musical piece for sound recording, a music genre, a title, and a sound recording compression mold type are displayed, or the track number of the musical piece of a reproduction object, a music genre, a title, and a sound recording compression mold type are displayed among the large capacity recording media 13.

[0022]

13 is the large capacity recording medium which comprised a hard disk, is a musical piece unit, and is recorded together with the musical piece notice information and the sound recording compression mold type information that the non compression or the compressed digital data of a music signal corresponds (sound recording). In the large capacity recording medium 13, a track number shall be assigned in order of sound recording. The compression zone which 14 changes into a predetermined sound recording compression mold type the music signal (digital music signal) outputted from CD reproduction part 2 at the time of sound recording, and is compressed, The restoration section which elongates 15 with the expansion system according to a sound recording compression mold type, and 16 are record and a reading part, and it is an one music unit by the sound recording control of a control section mentioned later, It is made to record on the large capacity recording medium 13 together with the musical piece notice information and the sound recording compression mold type information that the digital data of the music signal inputted from the compression zone 14 was inputted from the control section and that it corresponds. According to directions of a control section, the musical piece notice information of the musical piece of the request from the large capacity recording medium 13, Sound recording compression mold type information is read, and according to the reproduction control of a control section, it outputs to a control section, or the digital data of the music signal of a desired musical piece is read in the large capacity recording medium 13, and it outputs to the restoration section 15. When 17 plays the sound recording musical piece of a request of the large capacity recording medium 13 and the digital data of a music signal is compressed data, The compression music amendment part amended when the sample data of the signal missing by compression can be amended, and 18 are switches which change the output of CD reproduction part 2, and the output of the compression music amendment part 17, and are outputted to the sound-quality-correction part 10. After the sound-quality-correction part 10 performs sound quality correction in a digital field, D/A conversion of it is carried out and it is outputted to the amplifier part 5.

[0023]
19 is the communications department (modem) which considers bidirectional communication as the musical piece notice information database server 21 installed on this public network 20 via the external public network 20 by control of the control section. The musical piece notice information database server 21 The music genre for every musical piece of much CDs, It has the musical piece guidance information database device 22 which matched musical piece notice information, such as a title, with peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD, and memorized it (refer to drawing 8), If the retrieval required which uses ID (CD) as a search key from the exterior occurs, the musical piece notice information of all the musical pieces of CD corresponding to a search key will be searched out of the musical piece guidance information database device 22, and it will reply to a requiring agency. If the retrieval required which uses ID (CD-TNO) as a search key from the exterior occurs, The musical piece notice information of the musical piece of CD corresponding to a search key is searched out of a musical piece guidance information database, and it replies to a requiring agency (refer to JP,2001-297515,A as [In addition] related literature of the musical piece notice information database server 21).
[0024]
8A is a control section of microcomputer composition, and each part of audio equipment is controlled, and reproduce CD, sound recording from CD to a large capacity recording medium is carried out, or it reproduces the sound recording musical piece of a large capacity recording medium. The sound-quality-correction part 10 is controlled and the sound quality correction according to the music genre of the reproduction musical piece is made to perform at the time of reproduction. The control section 8A creates peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD by a predetermined operation from the TOC information of CD1 $_i$ set to CD reproduction part 2, The musical piece notice information for every musical piece of CD is searched from the musical piece guidance information database storage parts store 11. If it succeeds in search, it stores temporarily at the internal memory 9A, and it will match with a track number and a music genre and a title will be displayed on the indicator 12. If search goes wrong, the communications department 18 will be controlled, The retrieval demanding signal which uses peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD as a search key is made to transmit to the musical piece notice information database server 21 via the public network 20, and the musical piece notice information for every musical piece of CD is searched. If the replied search results are received in the communications department 18, and it would store temporarily at the internal memory 9A and will have succeeded in search, it will match with the indicator 12 at a track number, and a music genre and a title will be displayed, and it will register with the musical piece guidance information database storage parts store 11. If a track number is specified by the direct song selection key for CD and a music genre and a title are inputted, it will store temporarily at the internal memory 9A (when the musical piece notice information of the same track number already exists, it rewrites by an entry content), and additional registration will be carried out to the musical piece guidance information database storage parts store 11.
[0025]
The control section 8A has memorized the optimal sound-quality-correction data (it is considered as the frequency characteristic data for setting it as the sound-quality-correction part 10 here) according to music genre to the internal memory 9A beforehand, If playback of all the musical pieces of CD or a certain request musical piece is directed by the user, while the control section 8A will change the switch 18 to the a side, controlling CD reproduction part 2 and reproducing all the musical pieces or a request musical piece, It is at the reproduction start time of a reproduction musical piece, the sound-quality-correction data corresponding to the music genre of the reproduction musical piece is read, and it is set as the sound-quality-correction part 10. While controlling CD reproduction part 2 and making playback of a request musical piece start at the time of the sound recording of a certain request musical piece of CD, Sound recording control to record and the reading part 16 is carried out outputting the musical piece notice information of the musical piece for sound recording, and sound recording compression mold type information to record and the reading part 16, The digital data of the music signal outputted from the compression zone 14 is made to record on the large capacity recording medium 13 together with the musical piece notice information and the sound recording compression mold type information that it corresponds. The control section 8A is made to compress into the compression zone 14 according to a sound recording compression mold type, or it is made to output, while it

has been incompressible. A track number (as for the sound recording musical piece of the large capacity recording medium 13, a track number is assigned to an ascending order from 01 in order of sound recording) is specified to the large capacity recording medium 13 by the direct song selection key for large capacity recording media, If the PLAY key for large capacity recording media is pressed and reproduction operation of a sound recording musical piece is carried out, The control section 8A changes the switch 18 to the b side, and controls record and the reading part 16, The musical piece notice information matched with the digital data of the music signal of the sound recording musical piece of a track number applicable from the large capacity recording medium 13, It is made to display, while making sound recording compression mold type information read, inputting and storing temporarily at the internal memory 9A, It is made to elongate with the expansion system which sets a sound recording compression mold type as the restoration section 15, and corresponds to it (when incompressible in a sound recording compression mold type). The restoration section 15 serves as a slew mode, and moreover it makes the digital data of a music signal output with a predetermined sampling rate, the control section 8A directs amendment in the compression music amendment part 17, when a sound recording compression mold type is compression, and the sample data of the signal missing by compression can be amended. And record and the reading part 16 are controlled, while making the digital data of the music signal of a request sound recording musical piece read in the large capacity recording medium 13 and making it output to the restoration section 15, the sound-quality-correction data corresponding to the music genre of the sound recording musical piece of a reproduction object is read, and it is set as the sound-quality-correction part 10.

[0026]

The flow chart which shows playback and sound-recording-control processing of CD according [drawing 2 - drawing 4] to the control section 8A, The flow chart which shows reproduction control processing of the sound recording musical piece according [drawing 5] to the control section 8A, The explanatory view of the memory content of the musical piece guidance information database storage parts store 11 and drawing 7 are the explanatory views of the display example of the indicator 12, and drawing 6 explains the explanatory view, drawing 8, and drawing 9 of a memory content of the musical piece guidance information database device 22 with reference to these figures hereafter.

Here, let musical piece notice information be a music genre and a title. Nothing shall be beforehand memorized by the musical piece guidance information database storage parts store 11. Although the peculiar identification information of CD shall be used as a search key of musical piece notice information, the peculiar identification information for every musical piece of CD may be used.

[0027]

(1) Musical piece notice information search and a musical piece notice information input

If the opening/closing key (not shown) provided in the tray 3 is pressed and open operation is carried out, After the loading part 4 carries out unloading movement of the tray 3 to the exterior of apparatus and a user puts CD1 $_1$ of the track number 01-05 entering five music on the tray 3, When the opening/closing key is pressed and closing operation is carried out, the loading part 4 carries out loading movement of the tray 3 inside apparatus, and makes CD1 $_1$ set to CD reproduction part 2. If CD1 $_1$ is set to CD reproduction part 2, the control section 8A controls CD reproduction part 2, makes TOC information read, and is stored temporarily at the internal memory 9A (Step S10 of drawing 2, S11). Peculiar identification information ID (CD1 $_1$) of CD1 $_1$ is created by a predetermined operation using all or a part of TOC information, The musical piece notice information of all the musical pieces of CD1 $_1$ is searched for the musical piece guidance information database storage parts store 11 by using this identification information ID (CD1 $_1$) as a search key (Step S12, S13). When it succeeds in search, a result is stored temporarily at the internal memory 9A, and the indicator 12 is made to display musical piece notice information according to a track number (at Step S14). [YES and] Since searching becomes impossible S15, S16, and here (it is NO at Step S14), Then, the communications department 18 is controlled and the retrieval demanding signal which uses peculiar identification information ID (CD1 $_1$) of CD1 $_1$ as a search key is made to transmit to the musical piece notice information database server 21 via the public network 20 (Step S17).

[0028]

If a retrieval demanding signal is received, the musical piece notice information database server 21 searches using a search key to the attached musical piece guidance information database device 22, if it succeeds, will

read the musical piece notice information of all the musical pieces registered corresponding to identification information ID (CD1 $_1$), and will reply it to a requiring agency. An error notification is replied when search is impossible. If musical piece notice information or an error notification is received in the communications department 18, the control section 8A which inputted receipt information is stored temporarily at the internal memory 9A (Step S18), When having succeeded in search, the musical piece notice information of all the musical pieces which were matched with identification information ID (CD1 $_1$), and came to hand this time is made to register into the musical piece guidance information database storage parts store 11 (Step S19, S20.). It matches with a track number and musical piece notice information is displayed in a list on refer to drawing 6 (1) and the indicator 12 (Step S16.). Refer to drawing 8 (1). When re-setting of the same CD1 $_1$ is carried out to CD reproduction part 2 by this later, high-speed search of musical piece notice information is attained for the musical piece guidance information database storage parts store 11. It has made a mistake in whether the music genre or the title is missing about the track number 03 of CD1 $_1$, If the track number 03 is chosen by the direct song selection key for CD and a music genre or a title is inputted by a letter key to input by a manual, While storing temporarily at the internal memory 9A (rewritten when the music genre or title of the track number 03 is already memorized), it is made to register with the musical piece guidance information database storage parts store 11 (Step S21, S22.). Refer to drawing 6 (2) and drawing 8 (2). And it matches with a track number and musical piece notice information is displayed in a list on the indicator 12 (Step S16.). Refer to drawing 8 (2).

[0029]

(2) Playback of CD

When a user wants to play all the musical pieces of CD1 $_1$, the PLAY key for CD is pressed. Then, the control section 8A judges it as YES by Step S30 of drawing 3, and S31, After changing the switch 18 to the a side (Step S32), controlling CD reproduction part 2, making the head position of the 1st musical piece search and a search finishing (Step S33, S34), When the music genre of the musical piece of the track number 01 is stored temporarily at the internal memory 9A, Read corresponding sound-quality-correction data and it is set as the sound-quality-correction part 10 (Step S35) (when the music genre of the musical piece of the track number 01 is not stored temporarily, the sound-quality-correction data of the standard (for example, flat) defined beforehand is set as the sound-quality-correction part 10), CD reproduction part 2 is controlled and reproduction is made to start from the head position of the 1st musical piece (Step S36). After sound quality correction which was suitable for the music genre by the voice amendment part 10 is carried out, the music signal (digital music signal) of the 1st musical piece outputted from CD reproduction part 2 is changed into an analog musical signal, and is outputted to the amplifier part 5. Then, after reproduction finishes to the last of the 1st musical piece (it is YES at Step S37), when the following musical piece still exists, After controlling CD reproduction part 2, making the head position of the 2nd musical piece search and a search finishing (Step S38, S39, S34), When the music genre of the musical piece of the track number 02 is stored temporarily at the internal memory 9A, Read corresponding sound-quality-correction data and it is set as the sound-quality-correction part 10 (Step S35) (when the music genre of the musical piece of the track number 02 is not stored temporarily, the sound-quality-correction data of the standard defined beforehand is set as the sound-quality-correction part 10), CD reproduction part 2 is controlled and reproduction is made to start from the head position of the 2nd musical piece (Step S36). Reproduction is stopped, after it makes it reproduce to the last musical piece similarly and reproduction finishes to the last of the last musical piece hereafter (being Step S38 NO, S40).

[0030]

When a user wants to play the musical piece of CD1 $_1$03, for example, a track number, the track number 03 is chosen by the direct song selection key for CD, and the PLAY key is pressed. The control section 8A at Step S30 YES and S31 Then, NO, Judge it as YES by S41, and the switch 18 is changed to the a side (Step S42), After controlling CD reproduction part 2, making the head position of the 3rd musical piece search and a search finishing (Step S43, S44), When the music genre of the musical piece of the track number 03 is stored temporarily at the internal memory 9A, Read corresponding sound-quality-correction data and it is set as the sound-quality-correction part 10 (Step S45) (when the music genre of the musical piece of the track number 03 is not stored temporarily, the sound-quality-correction data of the standard defined beforehand is set as the sound-quality-correction part 10), CD reproduction part 2 is controlled and reproduction is made to start

from the head position of the 3rd musical piece (Step S46). Reproduction is stopped after reproduction finishes to the last of the 3rd musical piece (Step S47, S40).
Thus, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one about a reproduction musical piece, optimal sound quality correction doubled with the music genre is realized.
[0031]
(3) Sound recording of CD
For example, when a user wants to record the sound recording of the 3rd musical piece of CD1 $_1$ by the sound recording compression mold formula of the MPEG1 layer 3, "MP3" is chosen by a sound recording compression mold type selection key, the track number 03 is chosen by the direct song selection key for CD, and the REC key is pressed. If a sound recording compression mold type is chosen, the control section 8A will store the selected compression mold type temporarily at the internal memory 9A, and will set up the sound recording compression mold type chosen as the compression zone 14 (Steps S50-S52 of drawing 4.). When incompressible in a sound recording compression mold type, the compression zone 14 serves as a slew mode, and the music signal (digital music signal) outputted from CD reproduction part 2 is outputted as it is. And if the track number 03 is chosen by the direct song selection key for CD and the REC key is pressed, The track number of the musical piece of CD which the control section 8A judged it as YES at Step S53, and was chosen as the candidate for sound recording, It displays on the indicator 12 that it is under sound recording with the track number assigned with the large capacity recording medium 13 of a music genre, a title, and a sound recording place (Step S54, S55.). Refer to drawing 9 (1). And while controlling CD reproduction part 2, making the head position of the 3rd musical piece search and making reproduction start (Step S56), Recording start control is carried out to record and the reading part 16, giving the musical piece notice information of the musical piece of the track number 03 and the sound recording compression mold type information which were stored temporarily at the internal memory 9A. Data output of the music signal reproduced from CD reproduction part 2 is changed and carried out to a desired compression mold type by the compression zone 14. Record and the reading part 16 make the digital data of a music signal inputted from the compression zone 14 record on the large capacity recording medium 13 in response to recording start control together with the musical piece notice information and the sound recording compression mold type information that it corresponds (Step S57). (sound recording) When the musical piece notice information of the musical piece of the track number 03 of CD1 $_1$ is not stored temporarily at the internal memory 9A, it is made to record on the large capacity recording medium 13, using musical piece notice information as blank (sound recording). After playback finishes to the last of the 3rd musical piece, playback and sound recording are stopped and a display is erased during sound recording (Steps S58-S60).
[0032]
It can record similarly about other musical pieces of CD1 $_1$. If the tray opening / closing key (not shown) is pressed to exchange CD1 $_1$ for other CD1 $_j$, the loading part 4 will carry out unloading movement of the tray 3. If CD1 $_1$ is taken out from CD reproduction part 2, the control section 8A will erase the musical piece notice information according to track number which was being displayed on the indicator 12 (Step S23 of drawing 2, S24). By exchanging CD1 $_1$ to CD1 $_j$ and making it set to CD reproduction part 2, it can play and record similarly about the musical piece recorded on CD1 $_j$.
[0033]
(4) Playback of the musical piece recorded by the large capacity recording medium
For example, the track number 01 is chosen by the direct song selection key for large capacity recording media and the PLAY key for large capacity recording media is pressed to play the sound recording musical piece of the head of the large capacity recording medium 13. Then, the control section 8A judges it as YES at Step S70 of drawing 5, Make the musical piece notice information and the sound recording compression mold type which made the switch 18 changed to the b side (Step S71), pointed to record and the reading part 16, and were matched with the music signal data of the top sound recording musical piece from the large capacity recording medium 13 read, and it inputs, While storing temporarily at the internal memory 9A, it is made to display on the indicator 12 (Steps S72-S74), and the sound recording compression mold type read to the restoration section 15 this time is set up (Step S75.). When incompressible in the set-up sound recording

compression mold type, the restoration section 15 serves as a slew mode, and the digital data of a music signal inputted from record and the reading part 16 is outputted with a predetermined sampling rate. A sound recording compression mold type is compression, and when the sample data of the signal missing by compression can be amended, amendment is directed in the compression music amendment part 17 (Steps S76-SS78). When incompressible, or when amendment of the sample data of the signal missing by compression is impossible, it points to un-amending, and let the compression music amendment part 17 be a slew mode (Step S76, S77, S79). When the music genre of the sound recording musical piece of the track number 01 of the large capacity recording medium 13 is stored temporarily at the internal memory 9A, Corresponding sound-quality-correction data is read and it is set as the sound-quality-correction part 10 (Step S80). (when the music genre of the sound recording musical piece of the track number 01 is not stored temporarily, the sound-quality-correction data of the standard defined beforehand is set as the sound-quality-correction part 10)

[0034]

And carry out reproduction control to record and the reading part 16, the digital data of the music signal of the 1st sound recording musical piece is made to read in the large capacity recording medium 13 sequentially from a head, and it is made to output to the restoration section 15 (Step S81). The restoration section 15 outputs the music signal (digital music signal of a predetermined sampling rate) elongated with the restoration systems according to a sound recording compression mold type, when the digital data of the music signal is compressed (when the data of the music signal is not compressed). The inputted digital data of a music signal is outputted with a predetermined sampling rate. It is compressed, when the sample data of the signal missing by compression can be amended, after the sample data of the signal which was missing by compression by the compression music amendment part 17 is amended, it is inputted into the sound-quality-correction part 10 via the switch 18, and sound quality correction suitable for a music genre is carried out. The sound-quality-correction part 10 is changed and outputted to an analog musical signal after sound quality correction. Even if it is not compressed or is compressed, when amendment of sample data missing by compression is impossible, the output of the restoration section 15 is inputted into the sound-quality-correction part 10 via the switch 18 as it is.

If playback of the music signal of the 1st sound recording musical piece of the large capacity recording medium 13 finishes, the control section 8A will carry out reading stop control to record and the reading part 16, and will erase the display of the track number about the sound recording musical piece of a reproduction object, musical piece notice information, and a sound recording compression mold type (Steps S82-S84). Playback of other sound recording musical pieces of the large capacity recording medium 13 can be performed similarly.

Thus, when a user reproduces the sound recording musical piece of the large capacity recording medium 13, Even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one for every musical piece, optimal sound quality correction doubled with the music genre is realized.

[0035]

If desired CD is made to set to CD reproduction part 2 according to this embodiment, Search of the musical piece notice information of each musical piece is automatically made the musical piece guidance information database storage parts store 11 to the musical piece notice information database server 21 installed on the public network, And since the sound quality correction optimal at the time of reproduction of a musical piece for a music genre is hung automatically, it can be managed even if it does not carry out change operation of the sound quality correction which the user doubled with the music genre for every reproduction musical piece one by one. Since the musical piece notice information of each musical piece searched and obtained to the musical piece notice information database server 21 installed on the public network is matched with identification information peculiar to CD and registered into the musical piece guidance information database storage parts store 11, When carrying out re-setting of the later same CD and making it play, the necessity of carrying out retrieval required again to the musical piece notice information database server 21 is lost. Since additional registration of the musical piece notice information can also be carried out to the musical piece guidance information database storage parts store 11 in a manual input, it can respond, also when the search to the musical piece notice information database server 21 goes wrong.

[0036]

When a music signal is recorded from CD per musical piece to the large capacity recording medium 13, Musical piece notice information matches with a music signal, it is recorded together, and the optimal sound quality

correction for a music genre is automatically hung using the music genre matched with the music signal at the time of playback of the request sound recording musical piece of the large capacity recording medium 13. At the time of playback of the sound recording musical piece of the large capacity recording medium 13, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one, it can be managed by him. By the search after setting CD to CD reproduction part 2, about all or some musical pieces of CDs. If the manual input of the music genre is carried out to record a certain musical piece of CD to the large capacity recording medium 13 even if the musical piece concerned has few users even when search of a music genre is not completed, It can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one whenever it can match with the music data of a request musical piece, it can make a music genre record on the large capacity recording medium 13 together and it reproduced the sound recording musical piece concerned later.

[0037]

Next, a 2nd embodiment of this invention is described with reference to drawing 10. Drawing 10 is a block diagram showing the composition of the personal computer which embodies a function equivalent to the audio equipment of drawing 1, and the same numerals are given to the same component part as drawing 1.

1_1, 1_2, CD-ROM for which, as for .., the user recorded playback / sound recording program CD on hand and 100, 300 is a personal computer, among these 30 is a CD-ROM reading part, The TOC information recorded on $CD1_i$ or CD-ROM100 with which it was loaded from the outside is read and outputted, or the digital data of the music signal recorded on the program area of $CD1_i$ or CD-ROM100 and playback / sound recording program data are read and outputted. The tray on which 31 puts $CD1_i$ or CD-ROM100, 32 $CD1_i$ or CD-ROM100 which appeared in the tray 21 to the CD-ROM reading part 30 Loading / loading part which carries out unloading, The amplifier part to which 5 performs power amplification of a music signal (analog musical signal), the loudspeaker which drives 6 with the output of the amplifier part 5, 33 is a key input section and The input of the music genre of a musical piece, a title, etc., Various operations of the ordinary reproduction of $CD1_i$, direct song selection playback of $CD1_i$, selection of a sound recording compression mold type, the sound recording to the hard disk later mentioned from $CD1_i$, playback of the ****** musical piece in the sound recording musical piece recorded by the hard disk, etc. are performed.

[0038]

The voice output part which 36 changes a hard disk and 35 into an indicator, is changed into a memory, 37 changes the data of a music signal into an analog musical signal, and 34 outputs, It is CPU which 38 is based on the communications department (modem), and 39 is based on playback / sound recording program, and performs each processing of playback of CD, and sound recording and playback of the musical piece recorded from CD. The bus connection of CD-ROM reading part 30, key input section 33, hard disk 34, indicator 35, memory 36, voice output part 37, and CPU39 is carried out. The hard disk 34 can memorize now playback / sound recording program recorded on CD-ROM100 to the program storage area 34a including the program storage area 34a, the musical piece guidance information database storage area 34b, and the music data storage area 34c. The musical piece guidance information database field 34b is equivalent to the musical piece guidance information database storage parts store 11 of drawing 1, and the music data storage area 34c is equivalent to the large capacity recording medium 13.

[0039]

Playback / sound recording program recorded on CD-ROM100 is read by the CD-ROM reading part 30, and presupposes at the hard disk 34 that it is storing settled. The sound-quality-correction data according to music genre shall be beforehand contained in this playback / sound recording program. Based on playback / sound recording program, CPU39 performs processing equivalent to each function which the control section 8A of drawing 1, the compression zone 14, the restoration section 15, record and a reading part 16, and the compression music amendment part 17 have.

The musical piece notice information database server 21 and communication are possible for the communications department 38 via the external public network 20.

[0040]

The flow chart which shows the CD reproduction and sound recording processing in which CPU39 performs drawing 11 – drawing 13 based on playback / sound recording program, Drawing 14 is a flow chart which shows regeneration of the sound recording musical piece in the hard disk which CPU39 performs based on CD

reproduction and a sound recording program, and is hereafter explained with reference to these figures. Here, let musical piece notice information be a music genre and a title. Nothing shall be memorized beforehand in the musical piece guidance information database storage area 34b. Although the peculiar identification information of CD shall be used as a search key of musical piece notice information, the peculiar identification information for every musical piece of CD may be used.

[0041]

(1) Musical piece notice information search and a musical piece notice information input

After a user puts CD1 $_1$ of the track number 01-05 entering five music on the tray 31, When the opening/closing key is pressed and closing operation is carried out, the loading part 32 carries out loading movement of the tray 31 to the CD-ROM reading part 30, and makes CD1 $_1$ set to the CD-ROM reading part 30. If CD1 $_1$ is set to the CD-ROM reading part 30, CPU39 controls the CD-ROM reading part 30, makes TOC information read, and is stored temporarily in the memory 36 (step S10' of drawing 11, S11'). Peculiar identification information ID (CD1 $_1$) of CD1 $_1$ is created by a predetermined operation using all or a part of TOC information, It searches for the musical piece guidance information database storage area 34b by using this identification information ID (CD1 $_1$) as a search key (step S12', S13'). When it succeeds in search, a result is stored temporarily in the memory 36, and the indicator 35 is made to display musical piece notice information according to a track number (by step S14'). [YES and] Since searching becomes impossible S15', S16', and here (it is NO at step S14'), Then, the communications department 38 is controlled and the retrieval demanding signal which uses peculiar identification information ID (CD1 $_1$) of CD1 $_1$ as a search key is made to transmit to the musical piece notice information database server 21 via the public network 20 (step S17').

[0042]

If a retrieval demanding signal is received, the musical piece notice information database server 21 searches using a search key to the attached musical piece guidance information database device 22, if it succeeds, will read the musical piece notice information of all the musical pieces registered corresponding to identification information ID (CD1 $_1$), and will reply it to a requiring agency. An error notification is replied when search is impossible. If musical piece notice information or an error notification is received in the communications department 38, CPU39 which inputted receipt information is stored temporarily in the memory 36 (step S18'), When it succeeds in search, the musical piece notice information of all the musical pieces which were matched with identification information ID (CD1 $_1$), and came to hand this time is made to register into the musical piece guidance information database storage area 34b (step S19', S20'.). Drawing 6 (1). And it matches with a track number and musical piece notice information is displayed in a list on the indicator 35 (step S16'.). Refer to drawing 8 (1). When re-setting of the same CD1 $_1$ is carried out to the CD-ROM reading part 30 by this later, high-speed search of musical piece notice information is attained for the musical piece guidance information database storage area 34b. It has made a mistake in whether the music genre or the title is missing about the track number 03 of CD1 $_1$, If the track number 03 is chosen by the key input section 33 and a music genre or a title is inputted to input by a manual, While storing temporarily in the memory 36 (rewritten when the music genre or title of the track number 03 is already memorized), it is made to register with the musical piece guidance information database storage area 34b (step S21', S22'.). Refer to drawing 6 (2). And it matches with a track number and musical piece notice information is displayed in a list on the indicator 35 (step S16'.). Refer to drawing 8 (2).

[0043]

(2) Playback of CD

When a user wants to play all the musical pieces of CD1 $_1$, reproduction operation of CD all songs is carried out by the key input section 33. Then, CPU39 judges it as YES by step S30' of drawing 12, and S31', After controlling the CD-ROM reading part 30, making the head position of the 1st musical piece search and a search finishing (step S33', S34'), the CD-ROM reading part 30 is controlled and reading of the digital data of a music signal is made to start in order of record from the head position of the 1st musical piece. Since the music signal is recorded on CD with the incompressible digital data, the digital data read in CD1 $_1$ by the CD-ROM reading part 30 in order of record is a digital music signal, but. When the music genre of the musical piece of the track number 01 is stored temporarily in the memory 36, after carrying out sound-quality-

correction processing based on the corresponding sound-quality-correction data contained in playback / sound recording program, it outputs to the voice output part 37, and it is made to change into an analog musical signal, and is made to output (step S35'). When the music genre of the musical piece of the track number 01 is not stored temporarily, sound quality correction of the standard (for example, flat) defined beforehand is performed.

[0044]

And when reproduction finishes to the last of the 1st musical piece (it is YES at step S37') and the following musical piece still exists, After controlling the CD-ROM reading part 30, making the head position of the 2nd musical piece search and a search finishing (step S38', S39', S34'), the CD-ROM reading part 30 is controlled and reading of the digital data of a music signal is made to start sequentially from the head position of the 2nd musical piece. When the music genre of the musical piece of the track number 02 is stored temporarily in the memory 36, after carrying out sound-quality-correction processing based on the corresponding sound-quality-correction data contained in playback / sound recording program, it outputs to the voice output part 37, and is made to change and output to an analog musical signal (step S35'). After it makes it reproduce to the last musical piece similarly and reproduction finishes to the last of the last musical piece hereafter, reading of the CD-ROM reading part 30 is stopped, and reproduction is suspended (being step S38' NO, S40').

[0045]

When a user wants to play the musical piece of CD1 $_1$03, for example, a track number, direct song selection reproduction operation of the track number 03 is carried out by the key input section 33. then -- if CPU39 controls the CD-ROM reading part 30, the head position of the 3rd musical piece is made to search and a search finishes (step S41'.) S43', S44', and the CD-ROM reading part 30 are controlled, and reading of the digital data of a music signal is made to start sequentially from the head position of the 3rd musical piece. Although the digital data read in CD1 $_1$ by the CD-ROM reading part 30 in order of record is a digital music signal, When the music genre of the musical piece of the track number 03 is stored temporarily in the memory 36, after carrying out sound-quality-correction processing based on the corresponding sound-quality-correction data contained in playback / sound recording program, it outputs to the voice output part 37, and it is made to change into an analog musical signal, and is made to output (step S45'). When the music genre of the musical piece of the track number 03 is not stored temporarily, sound quality correction of the standard (for example, flat) defined beforehand is performed. And after reproduction finishes to the last of the 3rd musical piece, reading of the CD-ROM reading part 30 is stopped, and reproduction is suspended (being step S47' YES, S40').

Thus, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one about a reproduction musical piece, optimal sound quality correction doubled with the music genre is realized.

[0046]

(3) Sound recording of CD

For example, when a user wants to record the sound recording of the 3rd musical piece of CD1 $_1$ by the compression mold formula of the MPEG1 layer 3, the sound recording compression mold type "MP3" is first chosen by the key input section 33, and sound recording operation of the track number 03 is chosen and carried out. CPU39 stores the selected compression mold type temporarily in the memory 36, if a sound recording compression mold type is chosen (step S50' of drawing 13, S51'). And if the track number 03 is chosen and sound recording operation is pushed, CPU39 will judge it as YES by step S53', It displays on the indicator 35 that it is under sound recording with the track number assigned with the hard disk 34 of the track number of the musical piece of CD chosen as the candidate for sound recording, a music genre, a title, and a sound recording place (step S54', S55'.). Refer to drawing 9 (1). And while controlling the CD-ROM reading part 30, making the head position of the 3rd musical piece search and making reading of the digital data of a music signal start, The digital data of the music signal which carried out compression processing by the desired compression mold formula to the digital data of this music signal, It is made to record on the music data storage area 34c of the hard disk 24 together with the musical piece notice information and the sound recording compression mold type information which were stored temporarily in the memory 36 (step S56', S57'). (sound recording) When the musical piece notice information of the musical piece of the track number 03 of CD1 $_1$ is not stored temporarily in the memory 36, it is made to record, using musical piece notice

information as blank (sound recording). After record of the digital data of a music signal finishes to the last of the 3rd musical piece, reading and sound recording are stopped and a display is also erased during sound recording (step S58'-S60').

[0047]

It can record similarly about other musical pieces of CD1 $_1$. If the tray opening / closing key (not shown) is pressed to exchange CD1 $_1$ for other CD1 $_j$, the loading part 32 will carry out unloading movement of the tray 31. If CD1 $_1$ is taken out from the CD-ROM reading part 30, CPU39 will erase the musical piece notice information according to track number which was being displayed on the indicator 35 (step S23' of drawing 11, S24'). By exchanging CD1 $_1$ to CD1 $_j$ and making it set to the CD-ROM reading part 30, it can play and record similarly about the musical piece recorded on CD1 $_j$.

A track number shall be automatically assigned to each sound recording musical piece of the music data storage area 34c of the hard disk 34 in order of sound recording from 01.

[0048]

(4) Playback of the musical piece recorded by the hard disk

For example, by the key input section 33, the track number 01 on the music data storage area 34c is chosen and reproduction operation is carried out to play the sound recording musical piece of the head of the music data storage area 34c. Then, CPU39 judges it as YES by step S70' of drawing 13, While reading and inputting the musical piece notice information and the sound recording compression mold type which were matched with the digital data of the music signal of a top sound recording musical piece from the music data storage area 34c and storing temporarily in the memory 36, it is made to display on the indicator 35 (step S72'-S74'.). Refer to drawing 9. And reading of the digital data of the music signal of the 1st musical piece is started from the music data storage area 34c of the hard disk 34 (step S81'), When the sample data of the signal missing by the elongation processing (elongation processing is not carried out when incompressible) according to a sound recording compression mold type, and compression can be amended, a compression music compensation process is carried out (with the case where amendment of the sample data of the signal missing by compression is impossible.). When incompressible, the digital data of the music signal which carried out sound-quality-correction processing to the last based on the sound-quality-correction data according to a music genre, and was reproduced which does not carry out a compensation process is outputted to the voice output part 37, and it is made to change and output to an analog musical signal (Steps S90-S92).

If playback of the music signal of the sound recording musical piece of the head of the music data storage area 34c finishes, CPU39 will stop reading of the digital data of a music signal, and will erase the display of the track number about the sound recording musical piece of a reproduction object, musical piece notice information, and a sound recording compression mold type (step S82'-S84').

Playback of other sound recording musical pieces of the music data storage area 34c can be performed similarly.

Thus, when a user reproduces the sound recording musical piece of the music data storage area 34c of the hard disk 34, even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one for every musical piece, optimal sound quality correction doubled with the music genre is realized.

[0049]

If desired CD is made to set to the CD-ROM reading part 30 according to this embodiment, The musical piece notice information of each musical piece is searched to the musical piece notice information database server 21 automatically installed on the musical piece guidance information database storage area 34b and the public network, Since the sound quality correction optimal at the time of reproduction of a musical piece for a music genre is hung automatically, it can be managed even if it does not carry out change operation of the sound quality correction which the user doubled with the music genre for every reproduction musical piece one by one. Since the musical piece notice information of each musical piece searched and obtained to the musical piece notice information database server 21 installed on the public network is matched with identification information peculiar to CD and additional registration is carried out to the musical piece guidance information database storage area 34b, When reproducing the same CD next, the necessity of connecting with the public network 20 again is lost. Since additional registration of the musical piece notice information can also be carried out to the musical piece guidance information database storage area 34c in a manual input, it can

respond, also when the search to the musical piece notice information database server 21 goes wrong.
[0050]
When the data of a music signal is recorded from CD per musical piece to the music data storage area 34c of the hard disk 34, Musical piece notice information matches with the digital data of a music signal, it is recorded together, and the optimal sound quality correction for a music genre is automatically hung using the music genre matched with the digital data of the music signal at the time of playback of the request sound recording musical piece of the hard disk 34. At the time of playback of the sound recording musical piece of a hard disk, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one, it can be managed by him. By the search after setting CD to the CD-ROM reading part 30, about all or some musical pieces of CDs. If the manual input of the music genre is carried out to record a certain musical piece of CD to the hard disk 34 even if the musical piece concerned has few users even when search of a music genre is not completed, It can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one whenever it can match with the digital data of the music signal of a request musical piece, it can make a music genre record on the hard disk 34 together and it reproduced the sound recording musical piece concerned later.
[0051]
Although CD was mentioned as the example in each above-mentioned embodiment as a recording medium whose management information has been recorded [the digital data of the music signal of a musical piece, and], it is applicable also like the medium of other kinds like a DVD (digital versatile disk) audio.
Although the large capacity recording medium which comprised a hard disk as a candidate for sound recording was mentioned as the example, CD-R, DVD-RAM, DVD-R, a semiconductor memory card, etc. may be used.
Although identification information ID (CD) peculiar to CD was used as a search key of musical piece notice information, Identification information ID (CD-TNO) which may use peculiar identification information ID (CD-TNO) of the musical piece unit of CD can be easily created by adding a track number to the last of identification information ID (CD) peculiar to CD. When CD contains two or more musical pieces, the musical piece notice information of all the musical pieces of CD can be obtained by searching one musical piece at a time for the musical piece guidance information database storage parts store 11 or the musical piece notice information database server 21.
The compression music amendment part 17 in drawing 1 may be omitted, or it may be made to omit processing of Step S91 in drawing 14.
[0052]
Although it was made to perform the optimal sound quality correction for the music genre of a reproduction musical piece in each above-mentioned embodiment, In a 1st embodiment of drawing 1, a sound-quality-correction part is transposed to a sound-field-correction part, the sound-field-correction data with optimal music genre exception for an internal memory (reverberation time data.) That reverberant sound quantity data etc. are memorized and it is in Step S35 of drawing 3, and Step S80 of S45 and drawing 5 with "sound quality correction" by changing with "sound field correction." Read the sound-field-correction data corresponding to the music genre of a reproduction musical piece, and it is made to set it as a sound-field-correction part, In a 2nd embodiment of drawing 10 in making it the optimal sound field correction (optimization of reverberation time, the amount of reverberant sounds, etc.) for a reproduction musical piece start automatically, even if a user does not do selection operation of a music genre ****, That the optimal sound-field-correction data according to music genre is included in playback / sound recording program, and it is in Step S92 of step S35' of drawing 12, S45', and drawing 14 with "sound quality correction" by changing with "sound field correction." As sound-field-correction processing to a music signal is performed, a user may not do selection operation of a music genre, or it may be made for the optimal sound field correction for a reproduction musical piece to start automatically using the sound-field-correction data corresponding to the music genre of a reproduction musical piece.
[0053]
[Effect of the Invention]
According to this invention, based on the recording medium whose music signal of two or more musical pieces has recorded [1 or], Since the musical piece notice information of each musical piece is automatically searched to a musical piece guidance information database and amendment of the tone quality optimal at the time of reproduction of a musical piece for a music genre or an acoustic field is hung automatically, it can be managed even if it does not carry out change operation of the sound quality correction which the user doubled

with the music genre for every reproduction musical piece one by one.
Since music genre information was recorded together when the music signal of 1 or two or more musical pieces recorded a request musical piece on other recording media from a recorded recording medium according to other inventions, being concerned -- others -- it becomes possible to hang automatically amendment of the optimal tone quality for a music genre, or an acoustic field, also when playing the sound recording musical piece of a recording medium -- a user -- one by one -- being concerned -- others -- it can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre of the sound recording musical piece whenever it played the sound recording musical piece of the recording medium.
Since amendment of the optimal tone quality for a music genre or an acoustic field was automatically hung when playing the recording medium recorded on the music signal by music genre information matching according to other inventions, It can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre of the musical piece whenever the user reproduced the musical piece of the recording medium one by one.
[Brief Description of the Drawings]
[Drawing 1]It is a block diagram showing the composition of the audio equipment concerning a 1st embodiment of this invention.
[Drawing 2]It is a flow chart which shows playback and sound-recording-control processing of CD by the control section in drawing 1.
[Drawing 3]It is a flow chart which shows playback and sound-recording-control processing of CD by the control section in drawing 1.
[Drawing 4]It is a flow chart which shows playback and sound-recording-control processing of CD by the control section in drawing 1.
[Drawing 5]It is a flow chart which shows reproduction control processing of the sound recording musical piece by the control section in drawing 1.
[Drawing 6]It is an explanatory view of the memory content of the musical piece guidance information database storage parts store in drawing 1.
[Drawing 7]It is an explanatory view of the memory content of the musical piece guidance information database device in drawing 1.
[Drawing 8]It is an explanatory view of the display example of the indicator in drawing 1.
[Drawing 9]It is an explanatory view of the display example of the indicator in drawing 1.
[Drawing 10]It is a block diagram showing the composition of the personal computer concerning a 2nd embodiment of this invention.
[Drawing 11]It is a flow chart which shows playback / sound recording processing of CD by CPU in drawing 10.

[Drawing 12]It is a flow chart which shows playback / sound recording processing of CD by CPU in drawing 10.

[Drawing 13]It is a flow chart which shows playback / sound recording processing of CD by CPU in drawing 10.

[Drawing 14]It is a flow chart which shows regeneration of the sound recording musical piece by CPU in drawing 10.
[Drawing 15]It is a block diagram showing the example of composition of audio equipment.
[Description of Notations]
1_1, 1_2, 1_3, -- CD 2 CD reproduction part
5 Amplifier part 6 Loudspeaker
7A and 33 Key input section 8A Control section
9A Internal memory 10 Sound-quality-correction part
11 Musical piece guidance information database storage parts store
12 and 35 Indicator 13 Large capacity recording medium
16 Record and reading part 18 Switch
19 and 38 Communications department 20 Public network
21 Musical piece notice information database server
22 Musical piece guidance information database device

30 CD-ROM reading part 31 Tray
32 Loading part 34 Hard disk
34a Program storage area
34b Musical piece guidance information database storage area
34c Music data storage area 36 Memory
37 Voice output part 100 CD-ROM
300 Personal computer

[Translation done.]

TECHNICAL FIELD

[Field of the Invention]
This invention relates to the storage which recorded playback equipment, the recorder, the computer program, and the computer program, It is related with the storage which recorded the playback equipment, the recorder, computer program, and computer program which could be made to make easy the tone quality or sound field correction doubled especially with the music genre of the musical piece.

[0002]

[Translation done.]

* NOTICES *

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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

PRIOR ART

[Description of the Prior Art]
The music signal by which 1 or two or more musical pieces were digitized is recorded on the sauce media called CD (compact disk) with the management information called TOC (Table Of Contents) information. An example of the audio equipment which plays CD is shown in drawing 15. 1 is CD, two are a CD reproduction part, the TOC information recorded on CD with which it was loaded from the outside is read and outputted, or the reproducing output of the music signal by which digital recording was carried out to CD is read and carried out. The tray on which 3 puts CD1, and 4 CD1 which appeared in the tray 3 to CD reproduction part 2 Loading / loading part which carries out unloading, The amplifier part to which 5 performs power amplification of a music signal, the loudspeaker which drives 6 with the output of the amplifier part 5, the key input section in which 7 has the PLAY key, a direct song selection key, etc., and 8 are control sections, and manage overall reproduction control.
[0003]
If the opening/closing key (not shown) provided in the tray 3 is pressed and open operation is carried out, After the loading part 4 carries out unloading movement of the tray 3 to the exterior of apparatus and a user puts CD1 on the tray 3, When the opening/closing key is pressed and closing operation is carried out, the loading part 4 carries out loading movement of the tray 3 inside apparatus, and makes CD1 set to CD reproduction part 2. If CD1 is set to CD reproduction part 2, the control section 8 controls CD reproduction part 2, makes TOC information read, is inputted, and is stored temporarily at the internal memory 9. If the PLAY key is pressed after controlling CD reproduction part 2, making it reproduce sequentially from the first musical piece and arbitrary desired music's selecting a song by the direct song selection key of the key input section 7, if the PLAY key was pressed by the key input section 7 and ordinary reproduction was directed, CD reproduction part 2 is controlled with reference to TOC information, and it is made to play after making the starting position of desired music search (refer to JP,2000-090650,A as [In addition] related literature of a CD reproduction device).
[0004]
By the way, from CD1, depending on the music genre of a musical piece, low-pass is unsatisfactory, or a high region is [case played as it was] conspicuous too much, and it is sufficient, and sometimes carries out. It is sometimes unsatisfactory [of an acoustic field / of reverberation], or superfluous.
providing the sound-quality-correction part which performs sound quality correction of a music signal like the numerals 10 of drawing 15 as this measure -- the control section 8 -- the internal memory 9 -- music genres (a lock, pop, a classic, etc.) -- optimal another sound-quality-correction data (frequency characteristic data) is memorized. If a music genre selection key is provided in the key input section 7 and a user chooses the music genre of a reproduction musical piece, It is possible to make it make the sound quality correction which read the sound-quality-correction data corresponding to the music genre as which the control section 8 was chosen, set it as the sound-quality-correction part 10, and was suitable for the music genre of the reproduction musical piece perform.
Sound field correction can be made to perform similarly according to the selected music genre about an acoustic field.
[0005]

[Translation done.]

* NOTICES *

EFFECT OF THE INVENTION

[Effect of the Invention]
Based on the recording medium whose music signal of two or more musical pieces has recorded [1 or], the musical piece notice information of each musical piece is automatically searched with this invention to a musical piece guidance information database, and amendment of the tone quality optimal at the time of reproduction of a musical piece for a music genre or an acoustic field is hung automatically.
Therefore, it can be managed even if it does not carry out change operation of the sound quality correction which the user doubled with the music genre for every reproduction musical piece one by one.

In other inventions, when the music signal of 1 or two or more musical pieces recorded a request musical piece on other recording media from a recorded recording medium, music genre information was recorded together.
therefore -- being concerned -- others -- it becoming possible to hang automatically and amendment of the optimal tone quality for a music genre, or an acoustic field, also when playing the sound recording musical piece of a recording medium, a user -- one by one -- being concerned -- others -- it can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre of the sound recording musical piece whenever it played the sound recording musical piece of the recording medium.

In other inventions, when playing the recording medium recorded on the music signal by music genre information matching, amendment of the optimal tone quality for a music genre or an acoustic field was hung automatically.
Therefore, it can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre of the musical piece whenever the user reproduced the musical piece of the recording medium one by one.

[Translation done.]

* NOTICES *

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]
However, in the above-mentioned audio equipment, whenever a reproduction musical piece changes, a user has to direct a music genre, and the problem that operation is troublesome remains.
Whenever a reproduction musical piece changes, even if a user does not choose a music genre, this invention, It sets it as the purpose to provide the storage which recorded the playback equipment, the recorder, computer program, and computer program which enabled it to hang tone quality or sound field correction suitable for the music genre of a reproduction musical piece.
[0006]

[Translation done.]

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MEANS

[Means for Solving the Problem]
A recording-medium reproduction means which reads management information, or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded in the playback equipment according to claim 1, and carries out a reproducing output, From predetermined information read in a recording medium, create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and this identification information is used as a search key, A search means to search musical piece notice information of a musical piece recorded on a recording medium from a musical piece guidance information database containing a music genre, Optimal tone quality according to music genre or amendment data of an acoustic field is remembered to be a compensation means which performs tone quality or sound field correction to a music signal to an amendment data storage means, It is characterized by having a control means to which read tone quality corresponding to a music genre of a playback musical piece, or amendment data of an acoustic field, set it as a compensation means using music genre information on musical piece notice information searched with a search means, and amendment of tone quality or an acoustic field is made to carry out.
[0007]
Claim 2 is characterized by a search means performing a search in claim 1 to a musical piece notice information database server installed on an external network, and claim 3 equips claim 1 with the following. Match said search key and musical piece notice information, have a memorizable musical piece guidance information database memory measure, and a search means, When it searches for a musical piece guidance information database memory measure first and search goes wrong, while performing a search to a musical piece notice information database server installed on a network, When it succeeded in search, a search key and musical piece notice information are matched, and it was made to register with a musical piece guidance information database memory measure.
An identification information preparing means which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information by which it is characterized, and which claim 4 read in a recording medium in claim 1 or claim 3.
An alter operation means which carries out alter operation of musical piece notice information containing a music genre of each musical piece recorded on a recording medium, and a registration means to match musical piece notice information inputted by an alter operation means with identification information created by an identification information preparing means, and to make it register into a musical piece guidance information database memory measure.

[0008]
A recording-medium reading means which reads management information and a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded in the recorder according to claim 5, From predetermined information read in a recording medium, create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and this identification information is used as a search key, A search means to search musical piece notice information corresponding to a search key from a musical piece guidance information database containing a music genre, It is characterized by having a recording device which

records a music signal read in a recording medium on other recording media, matches music genre information on a record musical piece with a music signal, and records it together using music genre information on musical piece notice information searched with a search means in this case.
[0009]
In [claim 6 is characterized by a search means performing a search in claim 5 to a musical piece notice information database server installed on an external network, and] claim 5 claim 7, Match said search key and musical piece notice information, have a memorizable musical piece guidance information database memory measure, and a search means, When it searches for a musical piece guidance information database memory measure first and search goes wrong, while performing a search to a musical piece notice information database server installed on a network, In [it is characterized by matching a search key and musical piece notice information, and making it register with a musical piece guidance information database memory measure, when it succeeds in search, and] claim 5 or claim 7 claim 8, An identification information preparing means which creates peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium, An alter operation means which carries out alter operation of musical piece notice information containing a music genre of each musical piece recorded on a recording medium, and a registration means to match musical piece notice information inputted by an alter operation means with identification information created by an identification information preparing means, and to make it register into a musical piece guidance information database memory measure, It is characterized by preparation ****** and claim 9 from a recording medium besides the above recorded in claim 5 with music genre information to which a music signal corresponds per musical piece. A reproduction means which reads and carries out the reproducing output of a music signal and the corresponding music genre information, Optimal tone quality according to music genre or amendment data of an acoustic field is remembered to be a compensation means which performs amendment of tone quality or an acoustic field to a music signal to an amendment data storage means, It is characterized by having a control means to which read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out.
[0010]
The playback equipment according to claim 10 is provided with the following.
A reproduction means which reads a music signal and corresponding music genre information in a recording medium recorded with music genre information to which a music signal corresponds per musical piece, and carries out a reproducing output.
A compensation means which performs amendment of tone quality or an acoustic field to a music signal.
A control means to which have memorized optimal tone quality according to music genre, or amendment data of an acoustic field to an amendment data storage means, read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and amendment of tone quality or an acoustic field is made to carry out.

[0011]
The recorder according to claim 11 is provided with the following.
A recording-medium reading means which reads a music signal in a recording medium with which a music signal of 1 or two or more musical pieces was recorded.
An alter operation means which carries out alter operation of a music genre of a musical piece.
A recording device which records a music signal read in a recording medium on other recording media, matches with a music signal music genre information inputted by an alter operation means, and records it together in this case.

A reproduction means which claim 12 reads a music signal and corresponding music genre information in a recording medium besides the above recorded in claim 11 with music genre information to which a music signal corresponds per musical piece, and carries out a reproducing output, Optimal tone quality according to music genre or amendment data of an acoustic field is remembered to be a compensation means which performs amendment of tone quality or an acoustic field to a music signal to an amendment data storage means, It is characterized by having a control means to which read tone quality corresponding to a music genre of a reproduction musical piece, or amendment data of an acoustic field, set it as a compensation means, and

amendment of tone quality or an acoustic field is made to carry out.
[0012]
In a computer program (storage which recorded a computer program) given in claim 13 (25). Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded, Create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from predetermined information read in a recording medium, and this identification information is used as a search key, Processing which searches musical piece notice information of a musical piece recorded on a recording medium from a musical piece guidance information database containing a music genre, Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a playback musical piece in a recording medium, or amendment data of an acoustic field using music genre information on musical piece notice information searched previously.
[0013]
In claim 13 (25), claim 14 (26) in retrieval processing. In [it is characterized by performing a search to a musical piece notice information database server installed on an external network, and] claim 13 (25) claim 15 (27), First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search goes wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeds in search, In [it is characterized by matching a search key and musical piece notice information, and making it memorize to a musical piece guidance information database memory measure, and] claim 13 (25) or claim 15 (27) at claim 16 (28), From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created, It is characterized by including processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an alter operation means, and identification information created by identification information creation processing, and is made to register into a musical piece guidance information database memory measure.
[0014]
In a computer program (storage which recorded a computer program) given in claim 17 (29). Processing which reads management information or reads a music signal in a recording medium with which 1, or a music signal and management information of two or more musical pieces were recorded, From predetermined information read in a recording medium, create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium, and this identification information is used as a search key, Processing which searches musical piece notice information corresponding to a search key from a musical piece guidance information database containing a music genre, It is characterized by performing processing which matches music genre information on a record musical piece with music data and on which it is made to record together using music genre information on musical piece notice information that recorded a music signal read in a recording medium on other recording media, and it was previously searched at this time.
[0015]
In claim 18 (30), in claim 17 (29), in retrieval processing. In [it is characterized by performing a search to a musical piece notice information database server installed on an external network, and] claim 17 (29) at claim 19 (31), First, match said search key and musical piece notice information, and it refers to retrieval processing for a memorizable musical piece guidance information database memory measure, When search goes wrong, while performing a search to a musical piece notice information database server installed on a network, when it succeeds in search, In [it is characterized by matching a search key and musical piece notice information, and making it memorize to a musical piece guidance information database memory measure, and] claim 17 (29) or claim 19 (31) at claim 20 (32), From predetermined information read in a recording medium, peculiar identification information of a recording medium or peculiar identification information of a musical piece unit in a recording medium is created, It is characterized by including processing which matches musical piece notice information containing a music genre of each musical piece recorded on a recording medium inputted by an alter operation means, and identification information created by identification information creation processing,

and is made to register into a musical piece guidance information database memory measure, Processing which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece in claim 17 (29) in claim 21 (33), Carry out the reproducing output of the music signal read in a recording medium besides the above, and In this case. It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field according to tone quality or amendment data of an acoustic field defined according to a music genre.

[0016]

In a computer program (storage which recorded a computer program) given in claim 22 (34). Processing which reads a music signal and corresponding music genre information in a recording medium recorded with music genre information to which a music signal corresponds per musical piece, Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field.

[0017]

In a computer program (storage which recorded a computer program) given in claim 23 (35). Processing which reads a music signal in a recording medium with which a music signal of 1 or two or more musical pieces was recorded, It is characterized by performing processing which records a music signal read in a recording medium on other recording media, matches with a music signal music genre information on a record musical piece inputted by an alter operation means, and records it together in this case.

Processing which reads a music signal and corresponding music genre information in a recording medium besides the above recorded with music genre information to which a music signal corresponds per musical piece in claim 23 (35) in claim 24 (36), Carry out the reproducing output of the music signal read in a recording medium, and according to tone quality or amendment data of an acoustic field defined according to a music genre in this case, It is characterized by performing processing which carries out amendment of tone quality or an acoustic field to a music signal based on tone quality corresponding to a music genre of a reproduction musical piece in a recording medium, or amendment data of an acoustic field.

[0018]

It may be made to create peculiar identification information of a recording medium, or peculiar identification information of a musical piece unit in a recording medium from all or a part of management information read in a recording medium, for example in claims 1, 4, 5, 8, 13, 16, 17, 20, 25, 28, 29, and 32.

In claims 5, 11, 17, 23, 29, and 35, when recording a music signal on other recording media, an incompressible music signal may be compressed and recorded.

In claims 9, 10, 12, 21, 22, 24, 23, 34, and 36, when a music signal read from a recording medium is compressed, it elongates with an expansion system corresponding to compression technology, and a music signal is reproduced. It may be made to amend signal data missing by compression after extension.

[0019]

[Embodiment of the Invention]

Next, a 1st embodiment concerning this invention is described with reference to drawing 1. Drawing 1 is a block diagram showing the composition of the audio equipment concerning this invention, and the same numerals are given to the same component part as drawing 15.

1_1, 1_2, 1_3, and .. are CDs whose user stock has been recorded, respectively, TOC information is recorded on the TOC area, it is incompressible and the digital data of the music signal of 1 or two or more musical pieces is recorded on the program area. 2 is a CD reproduction part, it reads and outputs the TOC information recorded on CD with which it was loaded from the outside, or reads the digital data of the music signal recorded on CD, and carries out the reproducing output of the music signal (here, it is considered as a digital music signal). The tray on which 3 puts $CD1_i$, and 4 $CD1_i$ which appeared in the tray 3 to CD reproduction part 2 Loading / loading part which carries out unloading, The amplifier part to which 5 performs power amplification of a music signal (analog musical signal), the loudspeaker which drives 6 with the output of the amplifier part 5, The PLAY key for CD for 7A being a key input section and directing the ordinary reproduction

of CD1 $_i$, and direct song selection playback of CD1 $_i$, The REC key for having a direct song selection key for CD, and also directing the sound recording to the large capacity recording medium which comprised a hard disk later mentioned from CD1 $_i$, The sound recording compression mold type selection key which chooses the sound recording compression mold type at the time of recording, the music genre of a musical piece, It has a direct song selection key for large capacity recording media for choosing a request musical piece from the letter key which inputs a title etc., and the musical piece recorded by the large capacity recording medium, and making it play, and the PLAY key for large capacity recording media.

[0020]

11 is the musical piece guidance information database storage parts store which comprised a hard disk, semiconductor memory, etc., Musical piece notice information, such as a music genre for every musical piece of CD and a title, can be matched with peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD, and can be memorized (TNO shows a track number). Peculiar identification information ID (CD) of CD is information which distinguishes each CD uniquely, and is created by a predetermined operation from all or a part of TOC information of CD. Peculiar identification information ID (CD-TNO) for every musical piece of CD is created by adding TNO (track number) of a musical piece to peculiar identification information ID (CD) of CD at the end. The musical piece guidance information database storage parts store 11 is referred to immediately after setting CD1 $_i$ to CD reproduction part 2. Musical piece notice information as which the user specified and inputted the track number into the musical piece guidance information database storage parts store 11, such as a music genre and a title, Or the control section mentioned later uses peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD as a search key, and the result obtained from the external musical piece notice information database server by searching is registered.

[0021]

The music genre for every musical piece of CD1 $_i$ which 12 is an indicator and was set to CD reproduction part 2, Match with a track number, display a title or The inside of CD1 $_i$, The track number of the musical piece for sound recording, a music genre, a title, and a sound recording compression mold type are displayed, or the track number of the musical piece of a reproduction object, a music genre, a title, and a sound recording compression mold type are displayed among the large capacity recording media 13.

[0022]

13 is the large capacity recording medium which comprised a hard disk, is a musical piece unit, and is recorded together with the musical piece notice information and the sound recording compression mold type information that the non compression or the compressed digital data of a music signal corresponds (sound recording). In the large capacity recording medium 13, a track number shall be assigned in order of sound recording. The compression zone which 14 changes into a predetermined sound recording compression mold type the music signal (digital music signal) outputted from CD reproduction part 2 at the time of sound recording, and is compressed, The restoration section which elongates 15 with the expansion system according to a sound recording compression mold type, and 16 are record and a reading part, and it is an one music unit by the sound recording control of a control section mentioned later, It is made to record on the large capacity recording medium 13 together with the musical piece notice information and the sound recording compression mold type information that the digital data of the music signal inputted from the compression zone 14 was inputted from the control section and that it corresponds. According to directions of a control section, the musical piece notice information of the musical piece of the request from the large capacity recording medium 13, Sound recording compression mold type information is read, and according to the reproduction control of a control section, it outputs to a control section, or the digital data of the music signal of a desired musical piece is read in the large capacity recording medium 13, and it outputs to the restoration section 15. When 17 plays the sound recording musical piece of a request of the large capacity recording medium 13 and the digital data of a music signal is compressed data, The compression music amendment part amended when the sample data of the signal missing by compression can be amended, and 18 are switches which change the output of CD reproduction part 2, and the output of the compression music amendment part 17, and are outputted to the sound-quality-correction part 10. After the sound-quality-correction part 10 performs sound quality correction in a digital field, D/A conversion of it is carried out and it is outputted to the amplifier part 5.

[0023]

19 is the communications department (modem) which considers bidirectional communication as the musical piece notice information database server 21 installed on this public network 20 via the external public network 20 by control of the control section. The musical piece notice information database server 21 The music genre for every musical piece of much CDs, It has the musical piece guidance information database device 22 which matched musical piece notice information, such as a title, with peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD, and memorized it (refer to drawing 8), If the retrieval required which uses ID (CD) as a search key from the exterior occurs, the musical piece notice information of all the musical pieces of CD corresponding to a search key will be searched out of the musical piece guidance information database device 22, and it will reply to a requiring agency. If the retrieval required which uses ID (CD-TNO) as a search key from the exterior occurs, The musical piece notice information of the musical piece of CD corresponding to a search key is searched out of a musical piece guidance information database, and it replies to a requiring agency (refer to JP,2001-297515,A as [In addition] related literature of the musical piece notice information database server 21).

[0024]

8A is a control section of microcomputer composition, and each part of audio equipment is controlled, and reproduce CD, sound recording from CD to a large capacity recording medium is carried out, or it reproduces the sound recording musical piece of a large capacity recording medium. The sound-quality-correction part 10 is controlled and the sound quality correction according to the music genre of the reproduction musical piece is made to perform at the time of reproduction. The control section 8A creates peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD by a predetermined operation from the TOC information of CD1 , set to CD reproduction part 2, The musical piece notice information for every musical piece of CD is searched from the musical piece guidance information database storage parts store 11. If it succeeds in search, it stores temporarily at the internal memory 9A, and it will match with a track number and a music genre and a title will be displayed on the indicator 12. If search goes wrong, the communications department 18 will be controlled, The retrieval demanding signal which uses peculiar identification information ID (CD-TNO) for every musical piece of the peculiar identification information ID (CD) and CD of CD as a search key is made to transmit to the musical piece notice information database server 21 via the public network 20, and the musical piece notice information for every musical piece of CD is searched. If the replied search results are received in the communications department 18, and it would store temporarily at the internal memory 9A and will have succeeded in search, it will match with the indicator 12 at a track number, and a music genre and a title will be displayed, and it will register with the musical piece guidance information database storage parts store 11. If a track number is specified by the direct song selection key for CD and a music genre and a title are inputted, it will store temporarily at the internal memory 9A (when the musical piece notice information of the same track number already exists, it rewrites by an entry content), and additional registration will be carried out to the musical piece guidance information database storage parts store 11.

[0025]

The control section 8A has memorized the optimal sound-quality-correction data (it is considered as the frequency characteristic data for setting it as the sound-quality-correction part 10 here) according to music genre to the internal memory 9A beforehand, If playback of all the musical pieces of CD or a certain request musical piece is directed by the user, while the control section 8A will change the switch 18 to the a side, controlling CD reproduction part 2 and reproducing all the musical pieces or a request musical piece, It is at the reproduction start time of a reproduction musical piece, the sound-quality-correction data corresponding to the music genre of the reproduction musical piece is read, and it is set as the sound-quality-correction part 10. While controlling CD reproduction part 2 and making playback of a request musical piece start at the time of the sound recording of a certain request musical piece of CD, Sound recording control to record and the reading part 16 is carried out outputting the musical piece notice information of the musical piece for sound recording, and sound recording compression mold type information to record and the reading part 16, The digital data of the music signal outputted from the compression zone 14 is made to record on the large capacity recording medium 13 together with the musical piece notice information and the sound recording compression mold type information that it corresponds. The control section 8A is made to compress into the compression zone 14 according to a sound recording compression mold type, or it is made to output, while it has been incompressible. A track number (as for the sound recording musical piece of the large capacity

recording medium 13, a track number is assigned to an ascending order from 01 in order of sound recording) is specified to the large capacity recording medium 13 by the direct song selection key for large capacity recording media, If the PLAY key for large capacity recording media is pressed and reproduction operation of a sound recording musical piece is carried out, The control section 8A changes the switch 18 to the b side, and controls record and the reading part 16, The musical piece notice information matched with the digital data of the music signal of the sound recording musical piece of a track number applicable from the large capacity recording medium 13, It is made to display, while making sound recording compression mold type information read, inputting and storing temporarily at the internal memory 9A, It is made to elongate with the expansion system which sets a sound recording compression mold type as the restoration section 15, and corresponds to it (when incompressible in a sound recording compression mold type). The restoration section 15 serves as a slew mode, and moreover it makes the digital data of a music signal output with a predetermined sampling rate, the control section 8A directs amendment in the compression music amendment part 17, when a sound recording compression mold type is compression, and the sample data of the signal missing by compression can be amended. And record and the reading part 16 are controlled, while making the digital data of the music signal of a request sound recording musical piece read in the large capacity recording medium 13 and making it output to the restoration section 15, the sound-quality-correction data corresponding to the music genre of the sound recording musical piece of a reproduction object is read, and it is set as the sound-quality-correction part 10.

[0026]

The flow chart which shows playback and sound-recording-control processing of CD according [drawing 2 - drawing 4] to the control section 8A, The flow chart which shows reproduction control processing of the sound recording musical piece according [drawing 5] to the control section 8A, The explanatory view of the memory content of the musical piece guidance information database storage parts store 11 and drawing 7 are the explanatory views of the display example of the indicator 12, and drawing 6 explains the explanatory view, drawing 8, and drawing 9 of a memory content of the musical piece guidance information database device 22 with reference to these figures hereafter.

Here, let musical piece notice information be a music genre and a title. Nothing shall be beforehand memorized by the musical piece guidance information database storage parts store 11. Although the peculiar identification information of CD shall be used as a search key of musical piece notice information, the peculiar identification information for every musical piece of CD may be used.

[0027]

(1) Musical piece notice information search and a musical piece notice information input

If the opening/closing key (not shown) provided in the tray 3 is pressed and open operation is carried out, After the loading part 4 carries out unloading movement of the tray 3 to the exterior of apparatus and a user puts CD1 $_1$ of the track number 01-05 entering five music on the tray 3, When the opening/closing key is pressed and closing operation is carried out, the loading part 4 carries out loading movement of the tray 3 inside apparatus, and makes CD1 $_1$ set to CD reproduction part 2. If CD1 $_1$ is set to CD reproduction part 2, the control section 8A controls CD reproduction part 2, makes TOC information read, and is stored temporarily at the internal memory 9A (Step S10 of drawing 2, S11). Peculiar identification information ID (CD1 $_1$) of CD1 $_1$ is created by a predetermined operation using all or a part of TOC information, The musical piece notice information of all the musical pieces of CD1 $_1$ is searched for the musical piece guidance information database storage parts store 11 by using this identification information ID (CD1 $_1$) as a search key (Step S12, S13). When it succeeds in search, a result is stored temporarily at the internal memory 9A, and the indicator 12 is made to display musical piece notice information according to a track number (at Step S14). [YES and] Since searching becomes impossible S15, S16, and here (it is NO at Step S14), Then, the communications department 18 is controlled and the retrieval demanding signal which uses peculiar identification information ID (CD1 $_1$) of CD1 $_1$ as a search key is made to transmit to the musical piece notice information database server 21 via the public network 20 (Step S17).

[0028]

If a retrieval demanding signal is received, the musical piece notice information database server 21 searches using a search key to the attached musical piece guidance information database device 22, if it succeeds, will read the musical piece notice information of all the musical pieces registered corresponding to identification

information ID (CD1 $_1$), and will reply it to a requiring agency. An error notification is replied when search is impossible. If musical piece notice information or an error notification is received in the communications department 18, the control section 8A which inputted receipt information is stored temporarily at the internal memory 9A (Step S18), When having succeeded in search, the musical piece notice information of all the musical pieces which were matched with identification information ID (CD1 $_1$), and came to hand this time is made to register into the musical piece guidance information database storage parts store 11 (Step S19, S20.). It matches with a track number and musical piece notice information is displayed in a list on refer to drawing 6 (1) and the indicator 12 (Step S16.). Refer to drawing 8 (1). When re-setting of the same CD1 $_1$ is carried out to CD reproduction part 2 by this later, high-speed search of musical piece notice information is attained for the musical piece guidance information database storage parts store 11. It has made a mistake in whether the music genre or the title is missing about the track number 03 of CD1 $_1$, If the track number 03 is chosen by the direct song selection key for CD and a music genre or a title is inputted by a letter key to input by a manual, While storing temporarily at the internal memory 9A (rewritten when the music genre or title of the track number 03 is already memorized), it is made to register with the musical piece guidance information database storage parts store 11 (Step S21, S22.). Refer to drawing 6 (2) and drawing 8 (2). And it matches with a track number and musical piece notice information is displayed in a list on the indicator 12 (Step S16.). Refer to drawing 8 (2).

[0029]

(2) Playback of CD

When a user wants to play all the musical pieces of CD1 $_1$, the PLAY key for CD is pressed. Then, the control section 8A judges it as YES by Step S30 of drawing 3, and S31, After changing the switch 18 to the a side (Step S32), controlling CD reproduction part 2, making the head position of the 1st musical piece search and a search finishing (Step S33, S34), When the music genre of the musical piece of the track number 01 is stored temporarily at the internal memory 9A, Read corresponding sound-quality-correction data and it is set as the sound-quality-correction part 10 (Step S35) (when the music genre of the musical piece of the track number 01 is not stored temporarily, the sound-quality-correction data of the standard (for example, flat) defined beforehand is set as the sound-quality-correction part 10), CD reproduction part 2 is controlled and reproduction is made to start from the head position of the 1st musical piece (Step S36). After sound quality correction which was suitable for the music genre by the voice amendment part 10 is carried out, the music signal (digital music signal) of the 1st musical piece outputted from CD reproduction part 2 is changed into an analog musical signal, and is outputted to the amplifier part 5. Then, after reproduction finishes to the last of the 1st musical piece (it is YES at Step S37), when the following musical piece still exists, After controlling CD reproduction part 2, making the head position of the 2nd musical piece search and a search finishing (Step S38, S39, S34), When the music genre of the musical piece of the track number 02 is stored temporarily at the internal memory 9A, Read corresponding sound-quality-correction data and it is set as the sound-quality-correction part 10 (Step S35) (when the music genre of the musical piece of the track number 02 is not stored temporarily, the sound-quality-correction data of the standard defined beforehand is set as the sound-quality-correction part 10), CD reproduction part 2 is controlled and reproduction is made to start from the head position of the 2nd musical piece (Step S36). Reproduction is stopped, after it makes it reproduce to the last musical piece similarly and reproduction finishes to the last of the last musical piece hereafter (being Step S38 NO, S40).

[0030]

When a user wants to play the musical piece of CD1 $_1$03, for example, a track number, the track number 03 is chosen by the direct song selection key for CD, and the PLAY key is pressed. The control section 8A at Step S30 YES and S31 Then, NO, Judge it as YES by S41, and the switch 18 is changed to the a side (Step S42), After controlling CD reproduction part 2, making the head position of the 3rd musical piece search and a search finishing (Step S43, S44), When the music genre of the musical piece of the track number 03 is stored temporarily at the internal memory 9A, Read corresponding sound-quality-correction data and it is set as the sound-quality-correction part 10 (Step S45) (when the music genre of the musical piece of the track number 03 is not stored temporarily, the sound-quality-correction data of the standard defined beforehand is set as the sound-quality-correction part 10), CD reproduction part 2 is controlled and reproduction is made to start from the head position of the 3rd musical piece (Step S46). Reproduction is stopped after reproduction

finishes to the last of the 3rd musical piece (Step S47, S40).
Thus, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one about a reproduction musical piece, optimal sound quality correction doubled with the music genre is realized.
[0031]
(3) Sound recording of CD
For example, when a user wants to record the sound recording of the 3rd musical piece of CD1 $_1$ by the sound recording compression mold formula of the MPEG1 layer 3, "MP3" is chosen by a sound recording compression mold type selection key, the track number 03 is chosen by the direct song selection key for CD, and the REC key is pressed. If a sound recording compression mold type is chosen, the control section 8A will store the selected compression mold type temporarily at the internal memory 9A, and will set up the sound recording compression mold type chosen as the compression zone 14 (Steps S50-S52 of drawing 4.). When incompressible in a sound recording compression mold type, the compression zone 14 serves as a slew mode, and the music signal (digital music signal) outputted from CD reproduction part 2 is outputted as it is. And if the track number 03 is chosen by the direct song selection key for CD and the REC key is pressed, The track number of the musical piece of CD which the control section 8A judged it as YES at Step S53, and was chosen as the candidate for sound recording, It displays on the indicator 12 that it is under sound recording with the track number assigned with the large capacity recording medium 13 of a music genre, a title, and a sound recording place (Step S54, S55.). Refer to drawing 9 (1). And while controlling CD reproduction part 2, making the head position of the 3rd musical piece search and making reproduction start (Step S56), Recording start control is carried out to record and the reading part 16, giving the musical piece notice information of the musical piece of the track number 03 and the sound recording compression mold type information which were stored temporarily at the internal memory 9A. Data output of the music signal reproduced from CD reproduction part 2 is changed and carried out to a desired compression mold type by the compression zone 14. Record and the reading part 16 make the digital data of a music signal inputted from the compression zone 14 record on the large capacity recording medium 13 in response to recording start control together with the musical piece notice information and the sound recording compression mold type information that it corresponds (Step S57). (sound recording) When the musical piece notice information of the musical piece of the track number 03 of CD1 $_1$ is not stored temporarily at the internal memory 9A, it is made to record on the large capacity recording medium 13, using musical piece notice information as blank (sound recording). After playback finishes to the last of the 3rd musical piece, playback and sound recording are stopped and a display is erased during sound recording (Steps S58-S60).
[0032]
It can record similarly about other musical pieces of CD1 $_1$. If the tray opening / closing key (not shown) is pressed to exchange CD1 $_1$ for other CD1 $_j$, the loading part 4 will carry out unloading movement of the tray 3. If CD1 $_1$ is taken out from CD reproduction part 2, the control section 8A will erase the musical piece notice information according to track number which was being displayed on the indicator 12 (Step S23 of drawing 2, S24). By exchanging CD1 $_1$ to CD1 $_j$ and making it set to CD reproduction part 2, it can play and record similarly about the musical piece recorded on CD1 $_j$.
[0033]
(4) Playback of the musical piece recorded by the large capacity recording medium
For example, the track number 01 is chosen by the direct song selection key for large capacity recording media and the PLAY key for large capacity recording media is pressed to play the sound recording musical piece of the head of the large capacity recording medium 13. Then, the control section 8A judges it as YES at Step S70 of drawing 5, Make the musical piece notice information and the sound recording compression mold type which made the switch 18 changed to the b side (Step S71), pointed to record and the reading part 16, and were matched with the music signal data of the top sound recording musical piece from the large capacity recording medium 13 read, and it inputs, While storing temporarily at the internal memory 9A, it is made to display on the indicator 12 (Steps S72-S74), and the sound recording compression mold type read to the restoration section 15 this time is set up (Step S75.). When incompressible in the set-up sound recording compression mold type, the restoration section 15 serves as a slew mode, and the digital data of a music

signal inputted from record and the reading part 16 is outputted with a predetermined sampling rate. A sound recording compression mold type is compression, and when the sample data of the signal missing by compression can be amended, amendment is directed in the compression music amendment part 17 (Steps S76-SS78). When incompressible, or when amendment of the sample data of the signal missing by compression is impossible, it points to un-amending, and let the compression music amendment part 17 be a slew mode (Step S76, S77, S79). When the music genre of the sound recording musical piece of the track number 01 of the large capacity recording medium 13 is stored temporarily at the internal memory 9A, Corresponding sound-quality-correction data is read and it is set as the sound-quality-correction part 10 (Step S80). (when the music genre of the sound recording musical piece of the track number 01 is not stored temporarily, the sound-quality-correction data of the standard defined beforehand is set as the sound-quality-correction part 10)

[0034]

And carry out reproduction control to record and the reading part 16, the digital data of the music signal of the 1st sound recording musical piece is made to read in the large capacity recording medium 13 sequentially from a head, and it is made to output to the restoration section 15 (Step S81). The restoration section 15 outputs the music signal (digital music signal of a predetermined sampling rate) elongated with the restoration systems according to a sound recording compression mold type, when the digital data of the music signal is compressed (when the data of the music signal is not compressed). The inputted digital data of a music signal is outputted with a predetermined sampling rate. It is compressed, when the sample data of the signal missing by compression can be amended, after the sample data of the signal which was missing by compression by the compression music amendment part 17 is amended, it is inputted into the sound-quality-correction part 10 via the switch 18, and sound quality correction suitable for a music genre is carried out. The sound-quality-correction part 10 is changed and outputted to an analog musical signal after sound quality correction. Even if it is not compressed or is compressed, when amendment of sample data missing by compression is impossible, the output of the restoration section 15 is inputted into the sound-quality-correction part 10 via the switch 18 as it is.

If playback of the music signal of the 1st sound recording musical piece of the large capacity recording medium 13 finishes, the control section 8A will carry out reading stop control to record and the reading part 16, and will erase the display of the track number about the sound recording musical piece of a reproduction object, musical piece notice information, and a sound recording compression mold type (Steps S82-S84). Playback of other sound recording musical pieces of the large capacity recording medium 13 can be performed similarly.

Thus, when a user reproduces the sound recording musical piece of the large capacity recording medium 13, Even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one for every musical piece, optimal sound quality correction doubled with the music genre is realized.

[0035]

If desired CD is made to set to CD reproduction part 2 according to this embodiment, Search of the musical piece notice information of each musical piece is automatically made the musical piece guidance information database storage parts store 11 to the musical piece notice information database server 21 installed on the public network, And since the sound quality correction optimal at the time of reproduction of a musical piece for a music genre is hung automatically, it can be managed even if it does not carry out change operation of the sound quality correction which the user doubled with the music genre for every reproduction musical piece one by one. Since the musical piece notice information of each musical piece searched and obtained to the musical piece notice information database server 21 installed on the public network is matched with identification information peculiar to CD and registered into the musical piece guidance information database storage parts store 11, When carrying out re-setting of the later same CD and making it play, the necessity of carrying out retrieval required again to the musical piece notice information database server 21 is lost. Since additional registration of the musical piece notice information can also be carried out to the musical piece guidance information database storage parts store 11 in a manual input, it can respond, also when the search to the musical piece notice information database server 21 goes wrong.

[0036]

When a music signal is recorded from CD per musical piece to the large capacity recording medium 13, Musical piece notice information matches with a music signal, it is recorded together, and the optimal sound quality correction for a music genre is automatically hung using the music genre matched with the music signal at the

time of playback of the request sound recording musical piece of the large capacity recording medium 13. At the time of playback of the sound recording musical piece of the large capacity recording medium 13, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one, it can be managed by him. By the search after setting CD to CD reproduction part 2, about all or some musical pieces of CDs. If the manual input of the music genre is carried out to record a certain musical piece of CD to the large capacity recording medium 13 even if the musical piece concerned has few users even when search of a music genre is not completed, It can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one whenever it can match with the music data of a request musical piece, it can make a music genre record on the large capacity recording medium 13 together and it reproduced the sound recording musical piece concerned later.

[0037]

Next, a 2nd embodiment of this invention is described with reference to drawing 10. Drawing 10 is a block diagram showing the composition of the personal computer which embodies a function equivalent to the audio equipment of drawing 1, and the same numerals are given to the same component part as drawing 1.

1_1, 1_2, CD-ROM for which, as for .., the user recorded playback / sound recording program CD on hand and 100, 300 is a personal computer, among these 30 is a CD-ROM reading part, The TOC information recorded on $CD1_i$ or CD-ROM100 with which it was loaded from the outside is read and outputted, or the digital data of the music signal recorded on the program area of $CD1_i$ or CD-ROM100 and playback / sound recording program data are read and outputted. The tray on which 31 puts $CD1_i$ or CD-ROM100, 32 $CD1_i$ or CD-ROM100 which appeared in the tray 21 to the CD-ROM reading part 30 Loading / loading part which carries out unloading, The amplifier part to which 5 performs power amplification of a music signal (analog musical signal), the loudspeaker which drives 6 with the output of the amplifier part 5, 33 is a key input section and The input of the music genre of a musical piece, a title, etc., Various operations of the ordinary reproduction of $CD1_i$, direct song selection playback of $CD1_i$, selection of a sound recording compression mold type, the sound recording to the hard disk later mentioned from $CD1_i$, playback of the ****** musical piece in the sound recording musical piece recorded by the hard disk, etc. are performed.

[0038]

The voice output part which 36 changes a hard disk and 35 into an indicator, is changed into a memory, 37 changes the data of a music signal into an analog musical signal, and 34 outputs, It is CPU which 38 is based on the communications department (modem), and 39 is based on playback / sound recording program, and performs each processing of playback of CD, and sound recording and playback of the musical piece recorded from CD. The bus connection of CD-ROM reading part 30, key input section 33, hard disk 34, indicator 35, memory 36, voice output part 37, and CPU39 is carried out. The hard disk 34 can memorize now playback / sound recording program recorded on CD-ROM100 to the program storage area 34a including the program storage area 34a, the musical piece guidance information database storage area 34b, and the music data storage area 34c. The musical piece guidance information database field 34b is equivalent to the musical piece guidance information database storage parts store 11 of drawing 1, and the music data storage area 34c is equivalent to the large capacity recording medium 13.

[0039]

Playback / sound recording program recorded on CD-ROM100 is read by the CD-ROM reading part 30, and presupposes at the hard disk 34 that it is storing settled. The sound-quality-correction data according to music genre shall be beforehand contained in this playback / sound recording program. Based on playback / sound recording program, CPU39 performs processing equivalent to each function which the control section 8A of drawing 1, the compression zone 14, the restoration section 15, record and a reading part 16, and the compression music amendment part 17 have.

The musical piece notice information database server 21 and communication are possible for the communications department 38 via the external public network 20.

[0040]

The flow chart which shows the CD reproduction and sound recording processing in which CPU39 performs drawing 11 - drawing 13 based on playback / sound recording program, Drawing 14 is a flow chart which shows regeneration of the sound recording musical piece in the hard disk which CPU39 performs based on CD reproduction and a sound recording program, and is hereafter explained with reference to these figures.

Here, let musical piece notice information be a music genre and a title. Nothing shall be memorized beforehand in the musical piece guidance information database storage area 34b. Although the peculiar identification information of CD shall be used as a search key of musical piece notice information, the peculiar identification information for every musical piece of CD may be used.

[0041]

(1) Musical piece notice information search and a musical piece notice information input

After a user puts CD1 $_1$ of the track number 01-05 entering five music on the tray 31, When the opening/closing key is pressed and closing operation is carried out, the loading part 32 carries out loading movement of the tray 31 to the CD-ROM reading part 30, and makes CD1 $_1$ set to the CD-ROM reading part 30. If CD1 $_1$ is set to the CD-ROM reading part 30, CPU39 controls the CD-ROM reading part 30, makes TOC information read, and is stored temporarily in the memory 36 (step S10' of drawing 11, S11'). Peculiar identification information ID (CD1 $_1$) of CD1 $_1$ is created by a predetermined operation using all or a part of TOC information, It searches for the musical piece guidance information database storage area 34b by using this identification information ID (CD1 $_1$) as a search key (step S12', S13'). When it succeeds in search, a result is stored temporarily in the memory 36, and the indicator 35 is made to display musical piece notice information according to a track number (by step S14'). [YES and] Since searching becomes impossible S15', S16', and here (it is NO at step S14'), Then, the communications department 38 is controlled and the retrieval demanding signal which uses peculiar identification information ID (CD1 $_1$) of CD1 $_1$ as a search key is made to transmit to the musical piece notice information database server 21 via the public network 20 (step S17').

[0042]

If a retrieval demanding signal is received, the musical piece notice information database server 21 searches using a search key to the attached musical piece guidance information database device 22, if it succeeds, will read the musical piece notice information of all the musical pieces registered corresponding to identification information ID (CD1 $_1$), and will reply it to a requiring agency. An error notification is replied when search is impossible. If musical piece notice information or an error notification is received in the communications department 38, CPU39 which inputted receipt information is stored temporarily in the memory 36 (step S18'), When it succeeds in search, the musical piece notice information of all the musical pieces which were matched with identification information ID (CD1 $_1$), and came to hand this time is made to register into the musical piece guidance information database storage area 34b (step S19', S20'.). Drawing 6 (1). And it matches with a track number and musical piece notice information is displayed in a list on the indicator 35 (step S16'.). Refer to drawing 8 (1). When re-setting of the same CD1 $_1$ is carried out to the CD-ROM reading part 30 by this later, high-speed search of musical piece notice information is attained for the musical piece guidance information database storage area 34b. It has made a mistake in whether the music genre or the title is missing about the track number 03 of CD1 $_1$, If the track number 03 is chosen by the key input section 33 and a music genre or a title is inputted to input by a manual, While storing temporarily in the memory 36 (rewritten when the music genre or title of the track number 03 is already memorized), it is made to register with the musical piece guidance information database storage area 34b (step S21', S22'.). Refer to drawing 6 (2). And it matches with a track number and musical piece notice information is displayed in a list on the indicator 35 (step S16'.). Refer to drawing 8 (2).

[0043]

(2) Playback of CD

When a user wants to play all the musical pieces of CD1 $_1$, reproduction operation of CD all songs is carried out by the key input section 33. Then, CPU39 judges it as YES by step S30' of drawing 12, and S31', After controlling the CD-ROM reading part 30, making the head position of the 1st musical piece search and a search finishing (step S33', S34'), the CD-ROM reading part 30 is controlled and reading of the digital data of a music signal is made to start in order of record from the head position of the 1st musical piece. Since the music signal is recorded on CD with the incompressible digital data, the digital data read in CD1 $_1$ by the CD-ROM reading part 30 in order of record is a digital music signal, but. When the music genre of the musical piece of the track number 01 is stored temporarily in the memory 36, after carrying out sound-quality-correction processing based on the corresponding sound-quality-correction data contained in playback /

sound recording program, it outputs to the voice output part 37, and it is made to change into an analog musical signal, and is made to output (step S35'). When the music genre of the musical piece of the track number 01 is not stored temporarily, sound quality correction of the standard (for example, flat) defined beforehand is performed.

[0044]

And when reproduction finishes to the last of the 1st musical piece (it is YES at step S37') and the following musical piece still exists, After controlling the CD-ROM reading part 30, making the head position of the 2nd musical piece search and a search finishing (step S38', S39', S34'), the CD-ROM reading part 30 is controlled and reading of the digital data of a music signal is made to start sequentially from the head position of the 2nd musical piece. When the music genre of the musical piece of the track number 02 is stored temporarily in the memory 36, after carrying out sound-quality-correction processing based on the corresponding sound-quality-correction data contained in playback / sound recording program, it outputs to the voice output part 37, and is made to change and output to an analog musical signal (step S35'). After it makes it reproduce to the last musical piece similarly and reproduction finishes to the last of the last musical piece hereafter, reading of the CD-ROM reading part 30 is stopped, and reproduction is suspended (being step S38' NO, S40').

[0045]

When a user wants to play the musical piece of CD1 $_1$03, for example, a track number, direct song selection reproduction operation of the track number 03 is carried out by the key input section 33. then -- if CPU39 controls the CD-ROM reading part 30, the head position of the 3rd musical piece is made to search and a search finishes (step S41'.) S43', S44', and the CD-ROM reading part 30 are controlled, and reading of the digital data of a music signal is made to start sequentially from the head position of the 3rd musical piece. Although the digital data read in CD1 $_1$ by the CD-ROM reading part 30 in order of record is a digital music signal, When the music genre of the musical piece of the track number 03 is stored temporarily in the memory 36, after carrying out sound-quality-correction processing based on the corresponding sound-quality-correction data contained in playback / sound recording program, it outputs to the voice output part 37, and it is made to change into an analog musical signal, and is made to output (step S45'). When the music genre of the musical piece of the track number 03 is not stored temporarily, sound quality correction of the standard (for example, flat) defined beforehand is performed. And after reproduction finishes to the last of the 3rd musical piece, reading of the CD-ROM reading part 30 is stopped, and reproduction is suspended (being step S47' YES, S40').

Thus, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one about a reproduction musical piece, optimal sound quality correction doubled with the music genre is realized.

[0046]

(3) Sound recording of CD

For example, when a user wants to record the sound recording of the 3rd musical piece of CD1 $_1$ by the compression mold formula of the MPEG1 layer 3, the sound recording compression mold type "MP3" is first chosen by the key input section 33, and sound recording operation of the track number 03 is chosen and carried out. CPU39 stores the selected compression mold type temporarily in the memory 36, if a sound recording compression mold type is chosen (step S50' of drawing 13, S51'). And if the track number 03 is chosen and sound recording operation is pushed, CPU39 will judge it as YES by step S53', It displays on the indicator 35 that it is under sound recording with the track number assigned with the hard disk 34 of the track number of the musical piece of CD chosen as the candidate for sound recording, a music genre, a title, and a sound recording place (step S54', S55'.). Refer to drawing 9 (1). And while controlling the CD-ROM reading part 30, making the head position of the 3rd musical piece search and making reading of the digital data of a music signal start, The digital data of the music signal which carried out compression processing by the desired compression mold formula to the digital data of this music signal, It is made to record on the music data storage area 34c of the hard disk 24 together with the musical piece notice information and the sound recording compression mold type information which were stored temporarily in the memory 36 (step S56', S57'). (sound recording) When the musical piece notice information of the musical piece of the track number 03 of CD1 $_1$ is not stored temporarily in the memory 36, it is made to record, using musical piece notice information as blank (sound recording). After record of the digital data of a music signal finishes to the last of

the 3rd musical piece, reading and sound recording are stopped and a display is also erased during sound recording (step S58'-S60').

[0047]

It can record similarly about other musical pieces of CD1 $_1$. If the tray opening / closing key (not shown) is pressed to exchange CD1 $_1$ for other CD1 $_j$, the loading part 32 will carry out unloading movement of the tray 31. If CD1 $_1$ is taken out from the CD-ROM reading part 30, CPU39 will erase the musical piece notice information according to track number which was being displayed on the indicator 35 (step S23' of drawing 11, S24'). By exchanging CD1 $_1$ to CD1 $_j$ and making it set to the CD-ROM reading part 30, it can play and record similarly about the musical piece recorded on CD1 $_j$.

A track number shall be automatically assigned to each sound recording musical piece of the music data storage area 34c of the hard disk 34 in order of sound recording from 01.

[0048]

(4) Playback of the musical piece recorded by the hard disk

For example, by the key input section 33, the track number 01 on the music data storage area 34c is chosen and reproduction operation is carried out to play the sound recording musical piece of the head of the music data storage area 34c. Then, CPU39 judges it as YES by step S70' of drawing 13, While reading and inputting the musical piece notice information and the sound recording compression mold type which were matched with the digital data of the music signal of a top sound recording musical piece from the music data storage area 34c and storing temporarily in the memory 36, it is made to display on the indicator 35 (step S72'-S74'.). Refer to drawing 9. And reading of the digital data of the music signal of the 1st musical piece is started from the music data storage area 34c of the hard disk 34 (step S81'), When the sample data of the signal missing by the elongation processing (elongation processing is not carried out when incompressible) according to a sound recording compression mold type, and compression can be amended, a compression music compensation process is carried out (with the case where amendment of the sample data of the signal missing by compression is impossible.). When incompressible, the digital data of the music signal which carried out sound-quality-correction processing to the last based on the sound-quality-correction data according to a music genre, and was reproduced which does not carry out a compensation process is outputted to the voice output part 37, and it is made to change and output to an analog musical signal (Steps S90-S92).

If playback of the music signal of the sound recording musical piece of the head of the music data storage area 34c finishes, CPU39 will stop reading of the digital data of a music signal, and will erase the display of the track number about the sound recording musical piece of a reproduction object, musical piece notice information, and a sound recording compression mold type (step S82'-S84').

Playback of other sound recording musical pieces of the music data storage area 34c can be performed similarly.

Thus, when a user reproduces the sound recording musical piece of the music data storage area 34c of the hard disk 34, even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one for every musical piece, optimal sound quality correction doubled with the music genre is realized.

[0049]

If desired CD is made to set to the CD-ROM reading part 30 according to this embodiment, The musical piece notice information of each musical piece is searched to the musical piece notice information database server 21 automatically installed on the musical piece guidance information database storage area 34b and the public network, Since the sound quality correction optimal at the time of reproduction of a musical piece for a music genre is hung automatically, it can be managed even if it does not carry out change operation of the sound quality correction which the user doubled with the music genre for every reproduction musical piece one by one. Since the musical piece notice information of each musical piece searched and obtained to the musical piece notice information database server 21 installed on the public network is matched with identification information peculiar to CD and additional registration is carried out to the musical piece guidance information database storage area 34b, When reproducing the same CD next, the necessity of connecting with the public network 20 again is lost. Since additional registration of the musical piece notice information can also be carried out to the musical piece guidance information database storage area 34c in a manual input, it can respond, also when the search to the musical piece notice information database server 21 goes wrong.

[0050]
When the data of a music signal is recorded from CD per musical piece to the music data storage area 34c of the hard disk 34, Musical piece notice information matches with the digital data of a music signal, it is recorded together, and the optimal sound quality correction for a music genre is automatically hung using the music genre matched with the digital data of the music signal at the time of playback of the request sound recording musical piece of the hard disk 34. At the time of playback of the sound recording musical piece of a hard disk, even if a user does not do change operation of the sound quality correction doubled with the music genre one by one, it can be managed by him. By the search after setting CD to the CD-ROM reading part 30, about all or some musical pieces of CDs. If the manual input of the music genre is carried out to record a certain musical piece of CD to the hard disk 34 even if the musical piece concerned has few users even when search of a music genre is not completed, It can be managed even if it does not carry out change operation of the sound quality correction doubled with the music genre one by one whenever it can match with the digital data of the music signal of a request musical piece, it can make a music genre record on the hard disk 34 together and it reproduced the sound recording musical piece concerned later.
[0051]
Although CD was mentioned as the example in each above-mentioned embodiment as a recording medium whose management information has been recorded [the digital data of the music signal of a musical piece, and], it is applicable also like the medium of other kinds like a DVD (digital versatile disk) audio.
Although the large capacity recording medium which comprised a hard disk as a candidate for sound recording was mentioned as the example, CD-R, DVD-RAM, DVD-R, a semiconductor memory card, etc. may be used.
Although identification information ID (CD) peculiar to CD was used as a search key of musical piece notice information, Identification information ID (CD-TNO) which may use peculiar identification information ID (CD-TNO) of the musical piece unit of CD can be easily created by adding a track number to the last of identification information ID (CD) peculiar to CD. When CD contains two or more musical pieces, the musical piece notice information of all the musical pieces of CD can be obtained by searching one musical piece at a time for the musical piece guidance information database storage parts store 11 or the musical piece notice information database server 21.
The compression music amendment part 17 in drawing 1 may be omitted, or it may be made to omit processing of Step S91 in drawing 14.
[0052]
Although it was made to perform the optimal sound quality correction for the music genre of a reproduction musical piece in each above-mentioned embodiment, In a 1st embodiment of drawing 1, a sound-quality-correction part is transposed to a sound-field-correction part, the sound-field-correction data with optimal music genre exception for an internal memory (reverberation time data.) That reverberant sound quantity data etc. are memorized and it is in Step S35 of drawing 3, and Step S80 of S45 and drawing 5 with "sound quality correction" by changing with "sound field correction." Read the sound-field-correction data corresponding to the music genre of a reproduction musical piece, and it is made to set it as a sound-field-correction part, In a 2nd embodiment of drawing 10 in making it the optimal sound field correction (optimization of reverberation time, the amount of reverberant sounds, etc.) for a reproduction musical piece start automatically, even if a user does not do selection operation of a music genre ****, That the optimal sound-field-correction data according to music genre is included in playback / sound recording program, and it is in Step S92 of step S35' of drawing 12, S45', and drawing 14 with "sound quality correction" by changing with "sound field correction." As sound-field-correction processing to a music signal is performed, a user may not do selection operation of a music genre, or it may be made for the optimal sound field correction for a reproduction musical piece to start automatically using the sound-field-correction data corresponding to the music genre of a reproduction musical piece.
[0053]

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]It is a block diagram showing the composition of the audio equipment concerning a 1st embodiment of this invention.
[Drawing 2]It is a flow chart which shows playback and sound-recording-control processing of CD by the control section in drawing 1.
[Drawing 3]It is a flow chart which shows playback and sound-recording-control processing of CD by the control section in drawing 1.
[Drawing 4]It is a flow chart which shows playback and sound-recording-control processing of CD by the control section in drawing 1.
[Drawing 5]It is a flow chart which shows reproduction control processing of the sound recording musical piece by the control section in drawing 1.
[Drawing 6]It is an explanatory view of the memory content of the musical piece guidance information database storage parts store in drawing 1.
[Drawing 7]It is an explanatory view of the memory content of the musical piece guidance information database device in drawing 1.
[Drawing 8]It is an explanatory view of the display example of the indicator in drawing 1.
[Drawing 9]It is an explanatory view of the display example of the indicator in drawing 1.
[Drawing 10]It is a block diagram showing the composition of the personal computer concerning a 2nd embodiment of this invention.
[Drawing 11]It is a flow chart which shows playback / sound recording processing of CD by CPU in drawing 10.

[Drawing 12]It is a flow chart which shows playback / sound recording processing of CD by CPU in drawing 10.

[Drawing 13]It is a flow chart which shows playback / sound recording processing of CD by CPU in drawing 10.

[Drawing 14]It is a flow chart which shows regeneration of the sound recording musical piece by CPU in drawing 10.
[Drawing 15]It is a block diagram showing the example of composition of audio equipment.
[Description of Notations]
1_1, 1_2, 1_3, and .. CD 2 CD reproduction part
5 Amplifier part 6 Loudspeaker
7A and 33 Key input section 8A Control section
9A Internal memory 10 Sound-quality-correction part
11 Musical piece guidance information database storage parts store
12 and 35 Indicator 13 Large capacity recording medium
16 Record and reading part 18 Switch
19 and 38 Communications department 20 Public network
21 Musical piece notice information database server
22 Musical piece guidance information database device
30 CD-ROM reading part 31 Tray
32 Loading part 34 Hard disk
34a Program storage area

34b Musical piece guidance information database storage area
34c Music data storage area 36 Memory
37 Voice output part 100 CD-ROM
300 Personal computer

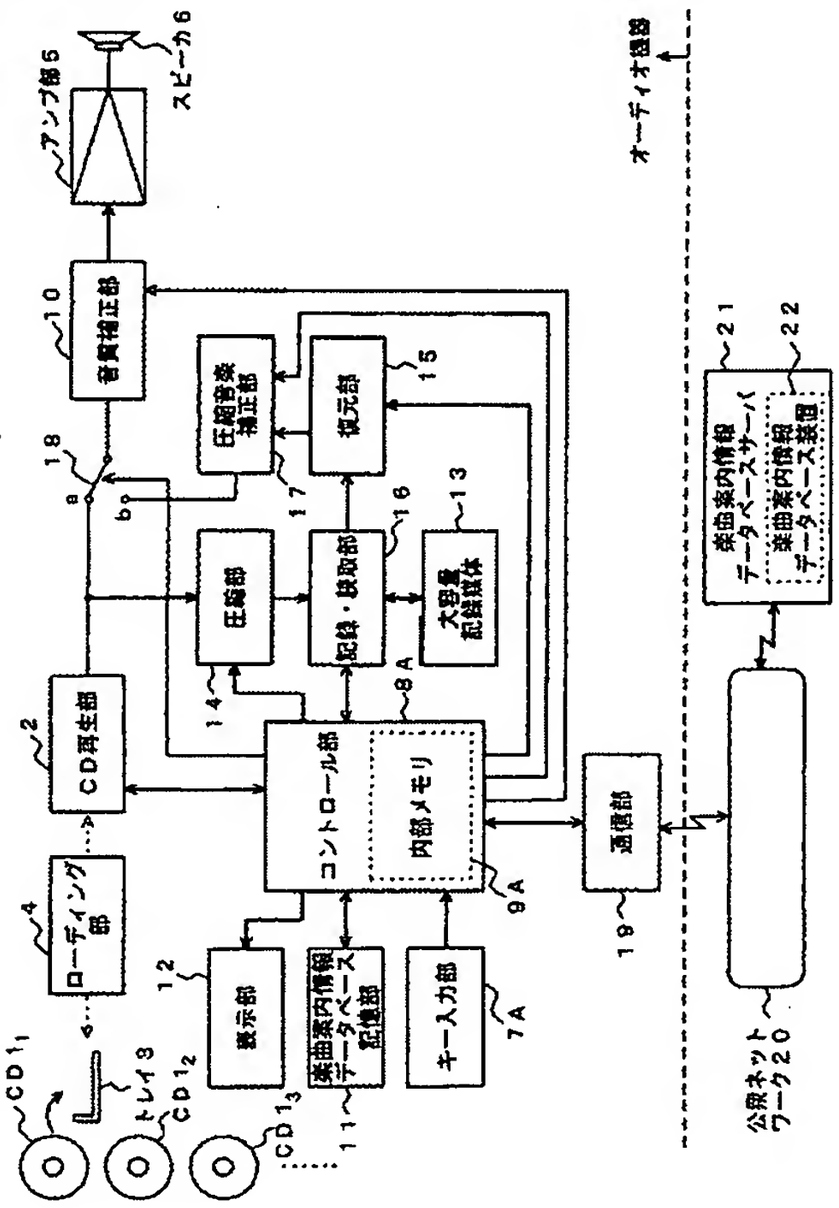
[Translation done.]

* NOTICES *

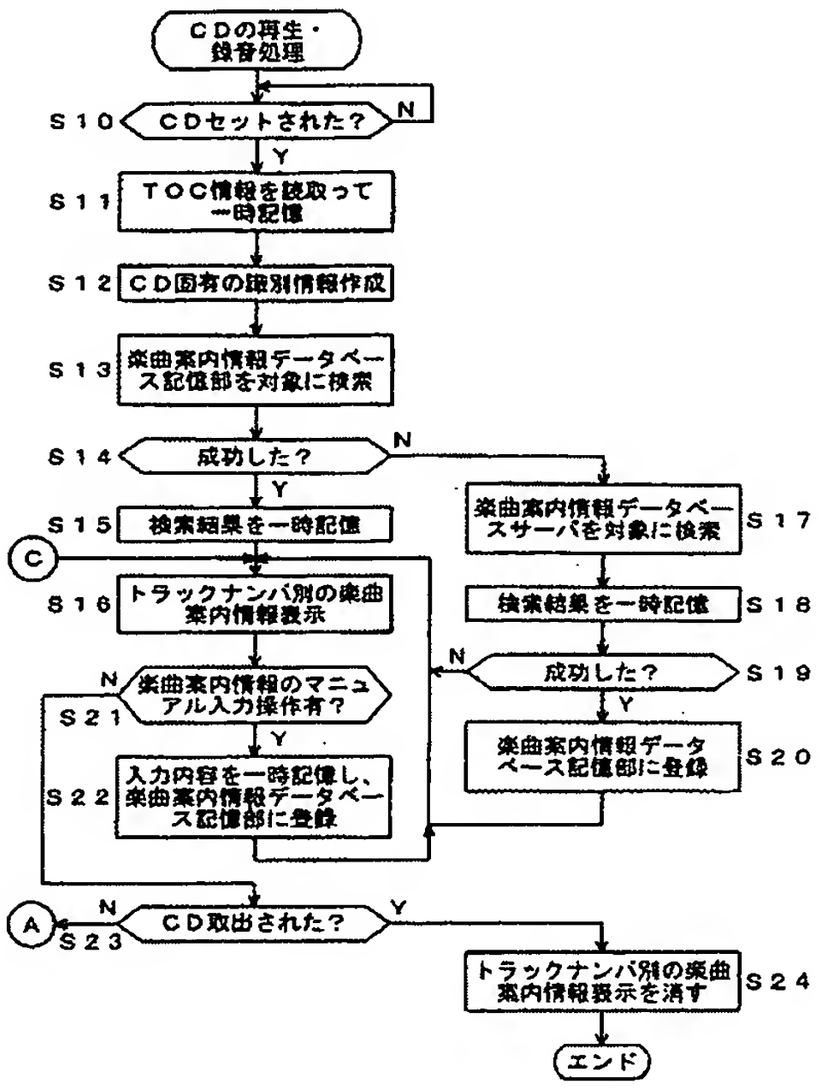
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

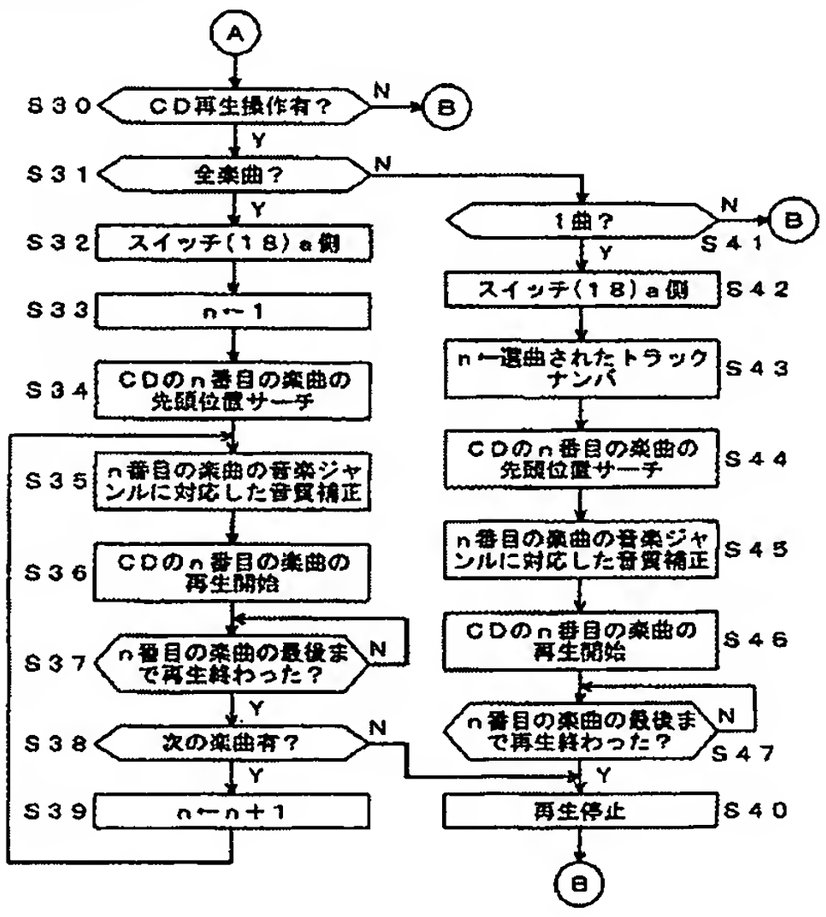
[Drawing 1]



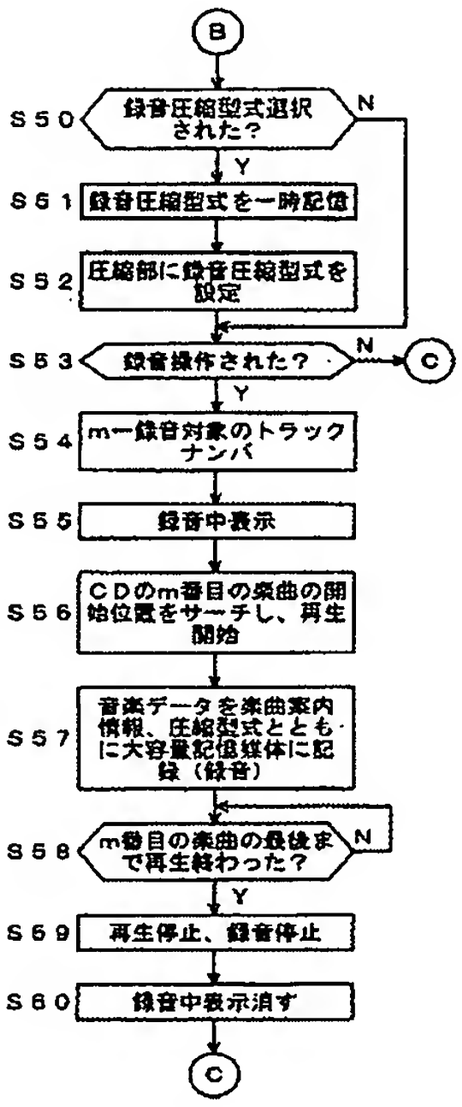
[Drawing 2]



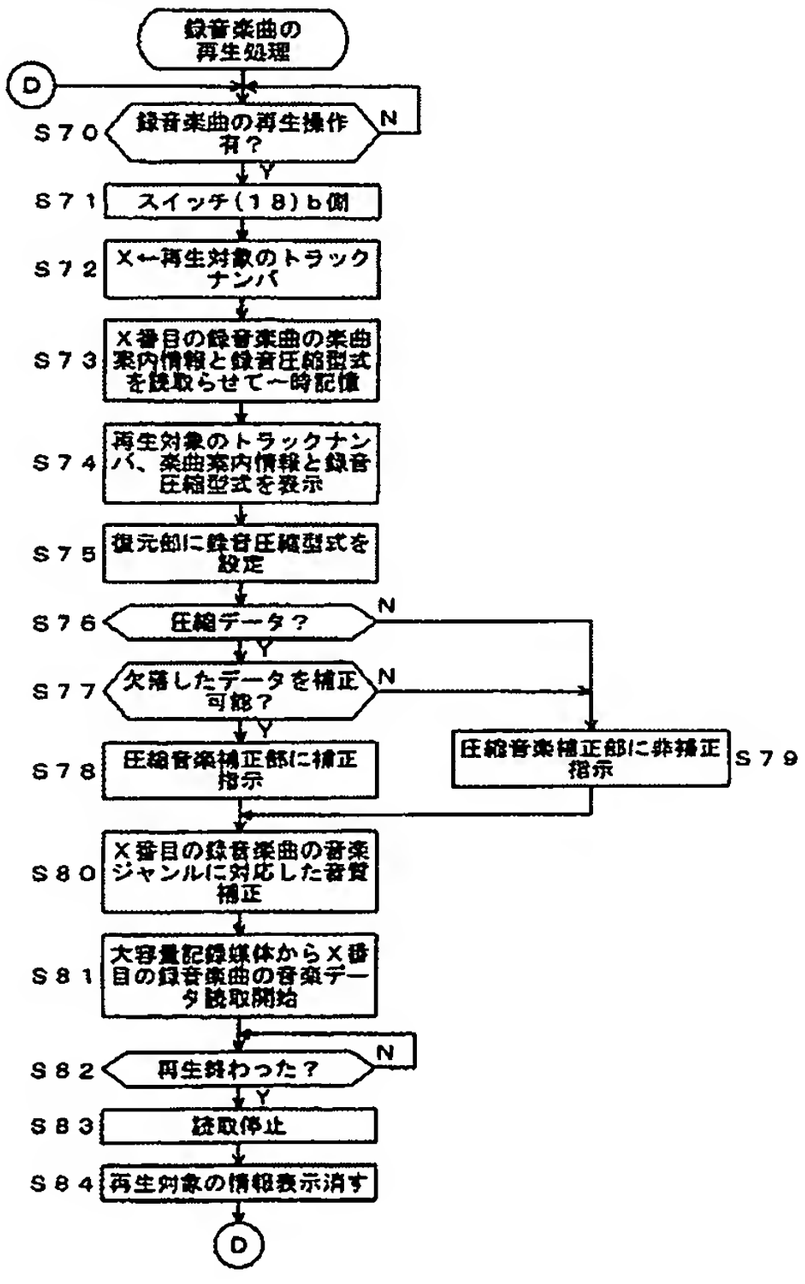
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Drawing 6]

(1)

楽曲案内情報

CD固有の識別情報	トラックナンバ	音楽ジャンル	タイトル
ID(CD1$_1$)	01	ロック	ANOTHER WORLD
	02	ロック	I WISH GO
	03	—	—
	04	ポップス	SO FANTASY
	05	ポップス	NEXT LIFE

— …ブランク　楽曲案内情報データベース記憶部11

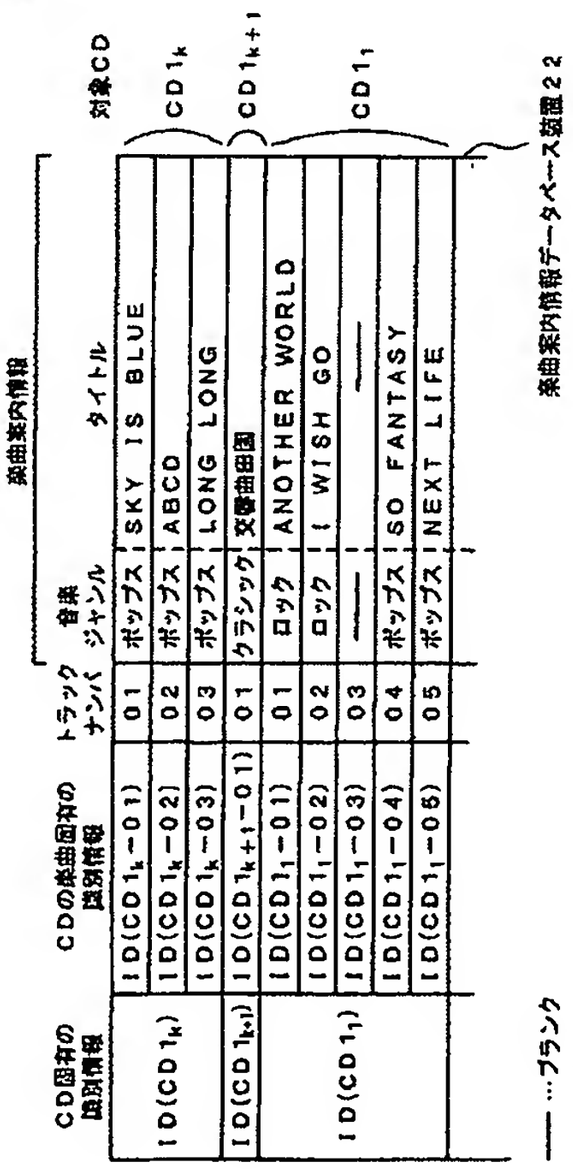
(2)

楽曲案内情報

CD固有の識別情報	トラックナンバ	音楽ジャンル	タイトル
ID(CD1$_1$)	01	ロック	ANOTHER WORLD
	02	ロック	I WISH GO
	03	ポップス	VERY GOOD
	04	ポップス	SO FANTASY
	05	ポップス	NEXT LIFE

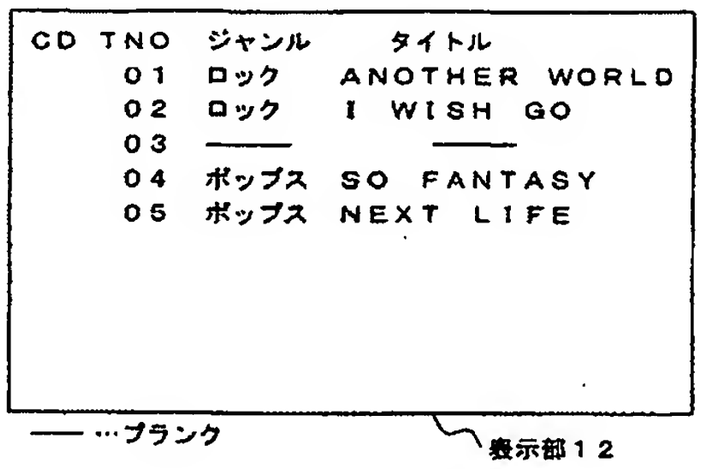
11

[Drawing 7]

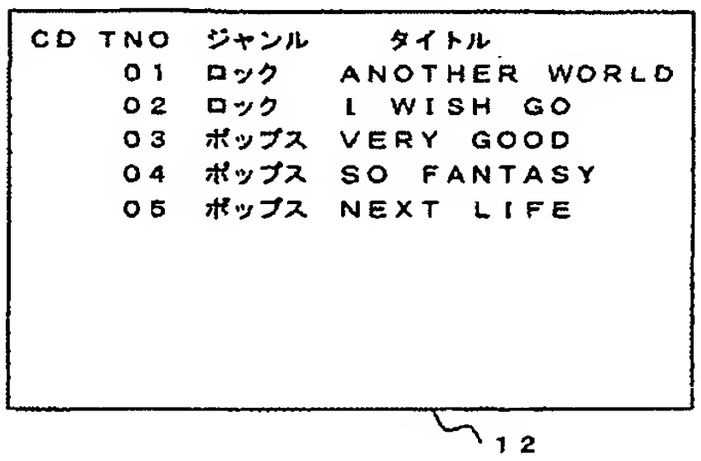


[Drawing 8]

(1)

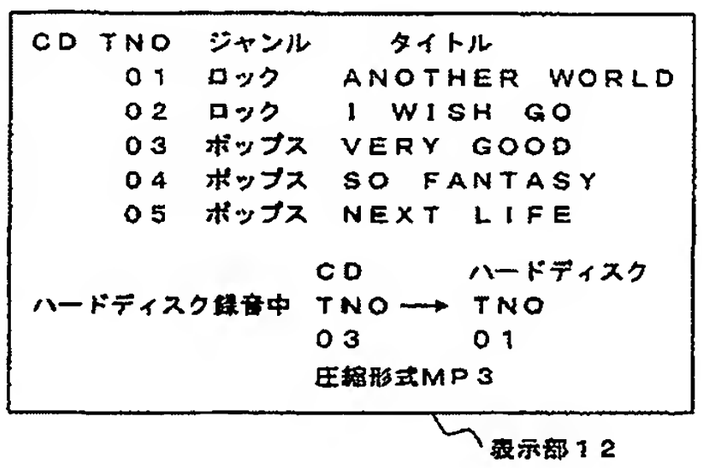


(2)



[Drawing 9]

(1)



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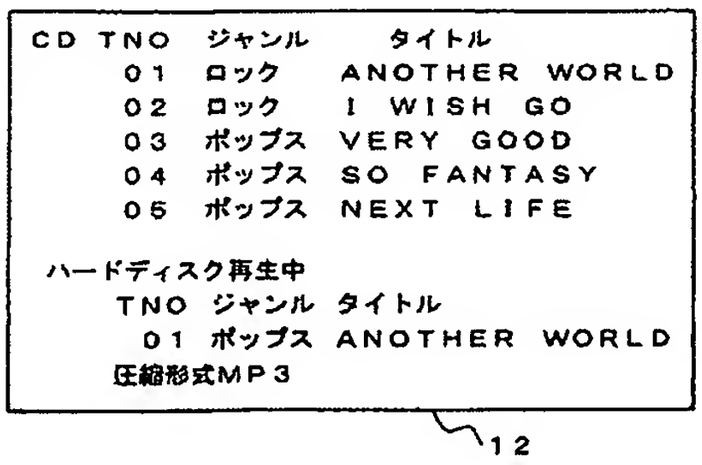
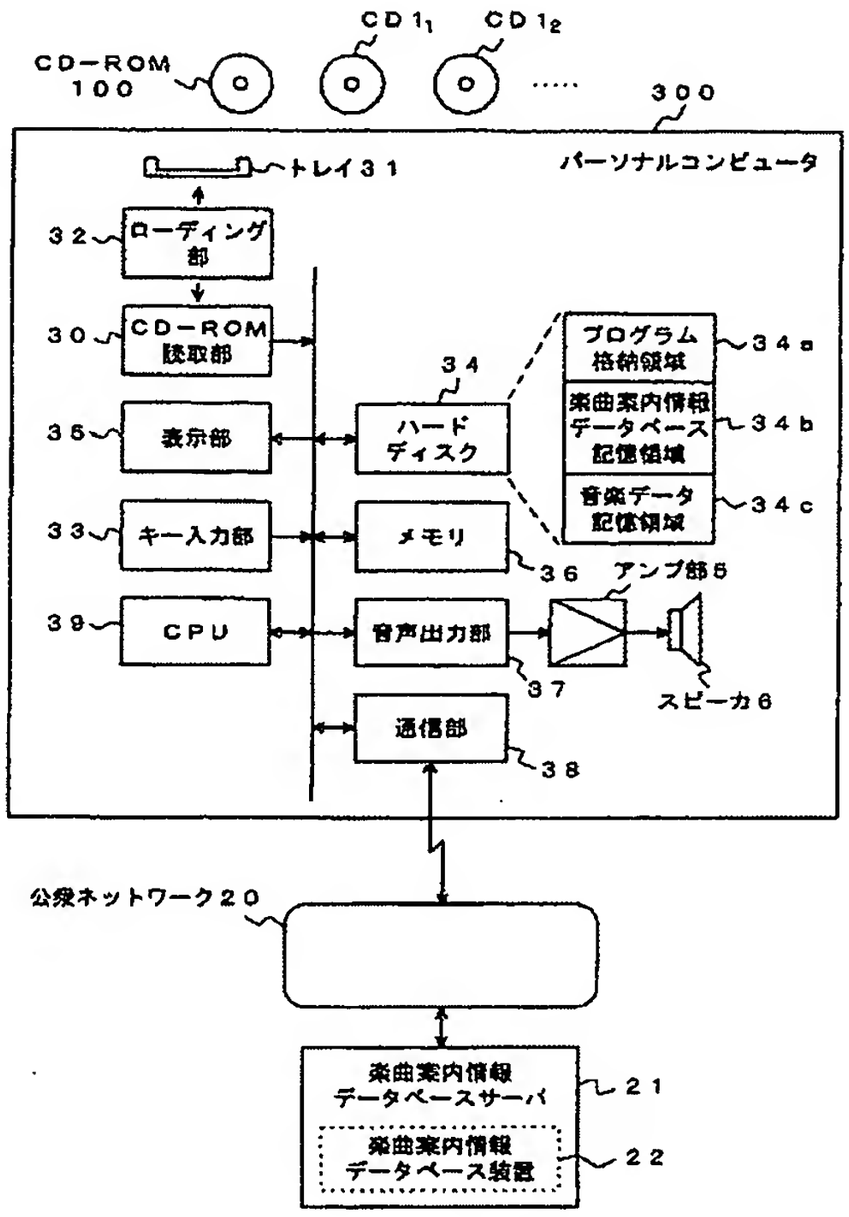
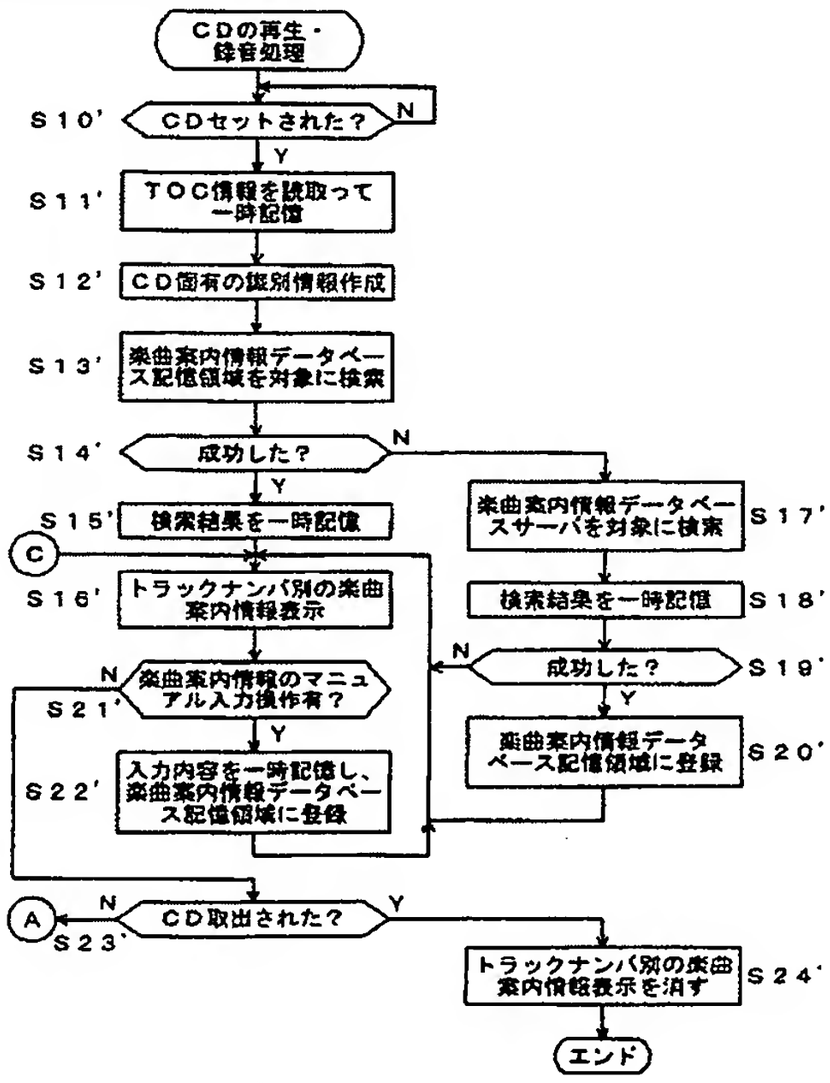


[Drawing 10]



[Drawing 11]



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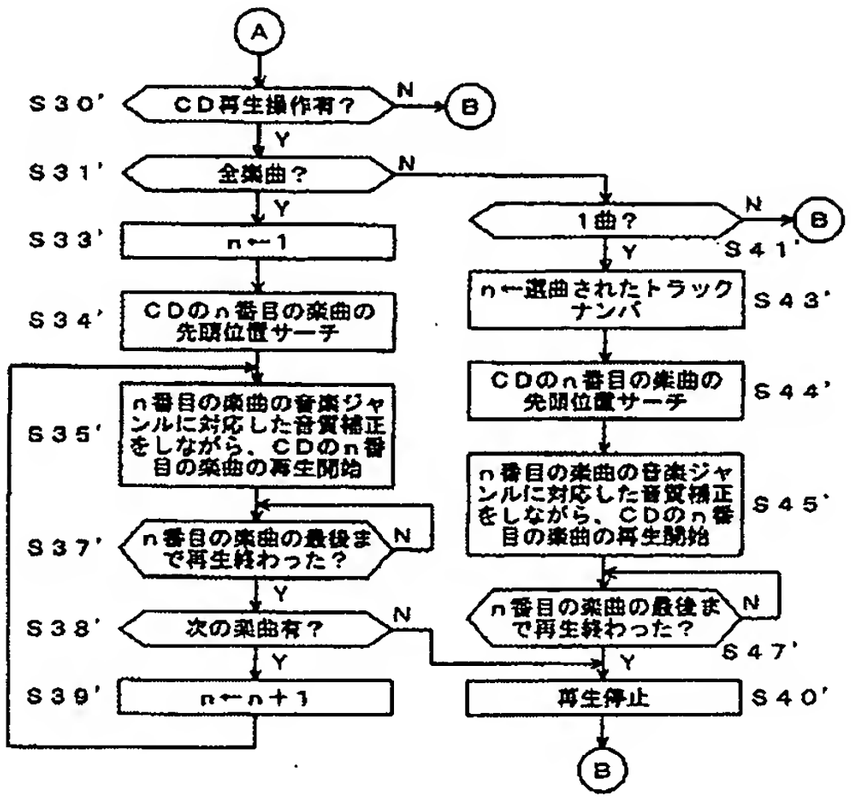
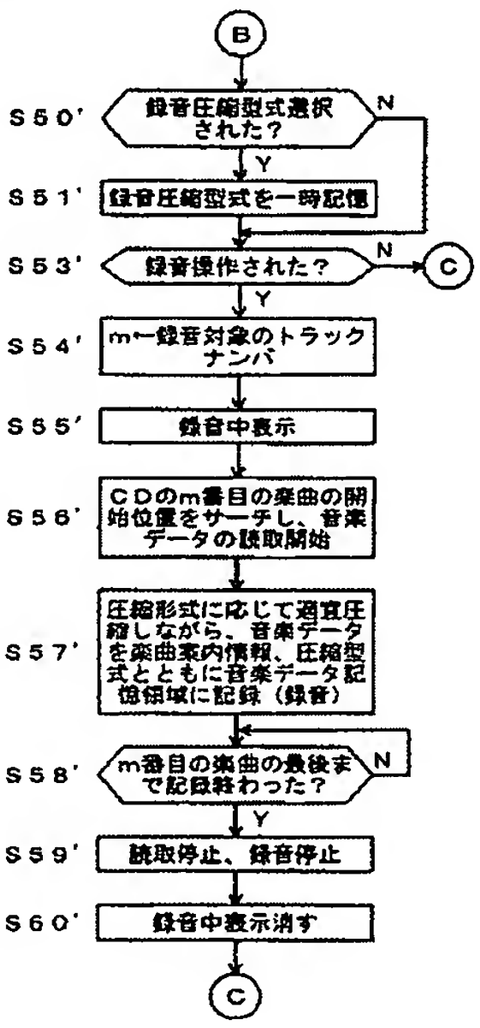
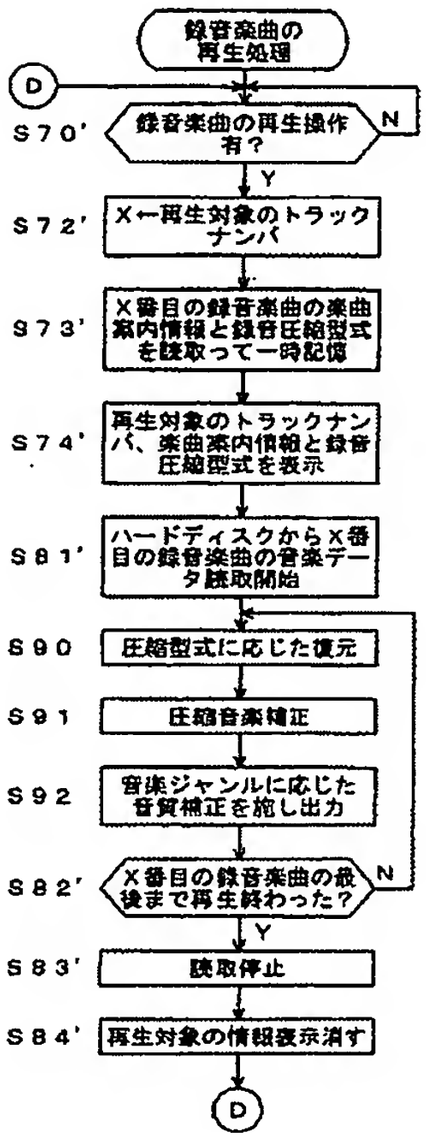


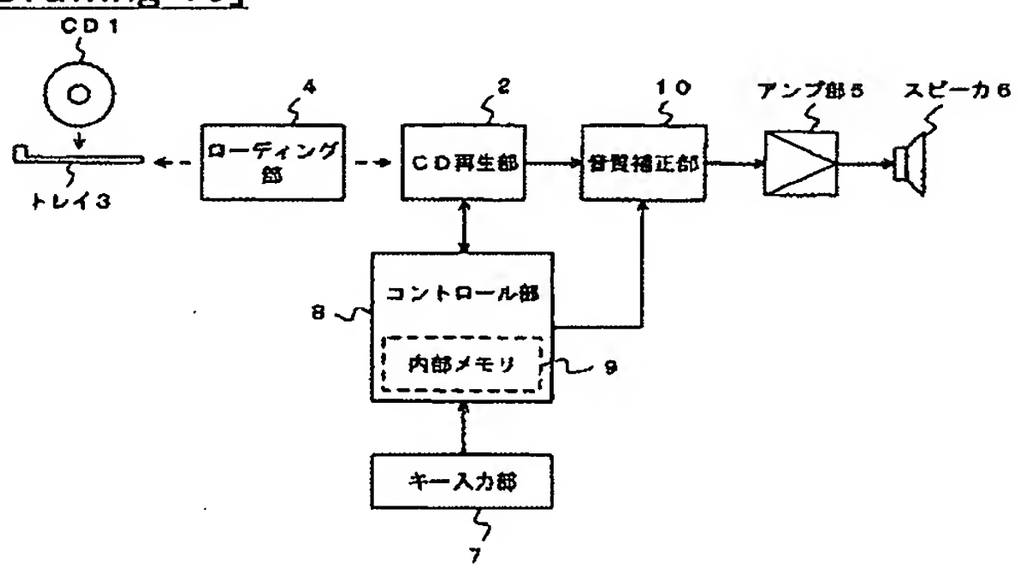
[Drawing 13]



[Drawing 14]



[Drawing 15]



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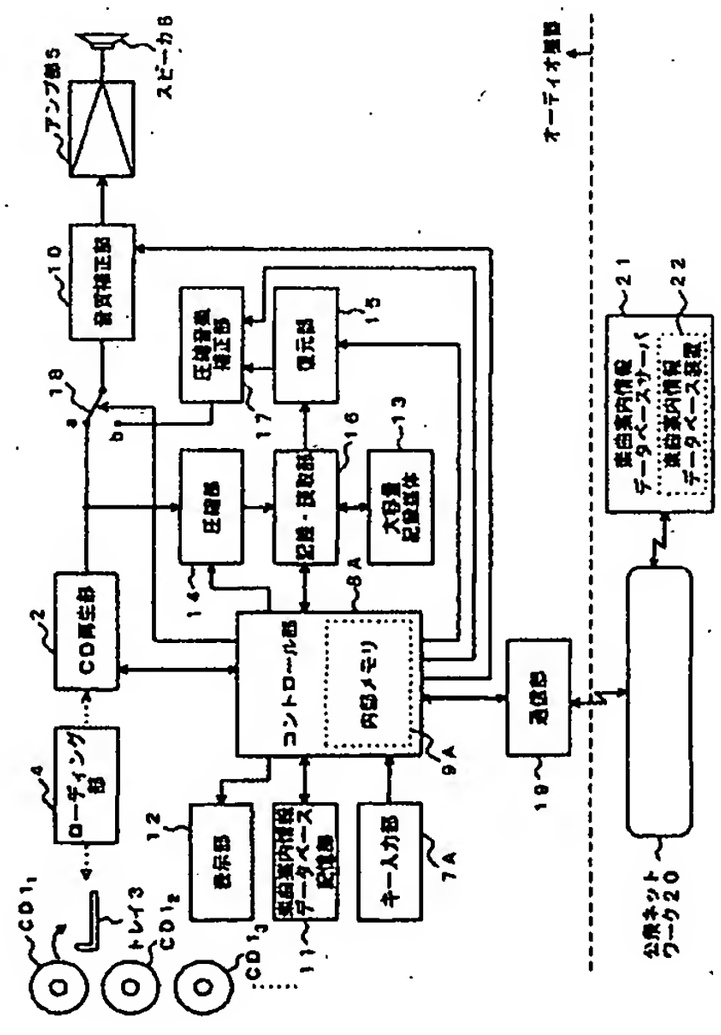
DA12 DB08 DE01 EA07 EB01

(54)【発明の名称】再生装置、記録装置、コンピュータプログラム、コンピュータプログラムを記録した記憶媒体

(57)【要約】
【課題】再生楽曲が変わる度にユーザが音楽ジャンルを選択しなくても、再生楽曲の音楽ジャンルに適した音質補正が自動的にできる。
【解決手段】コントロール部８Ａは音楽ジャンル別の音質補正データを内部メモリ９Ａに記憶している。或る音楽ＣＤ１，がＣＤ再生部２にセットされると、ＴＯＣ情報を読み取らせ、該ＴＯＣ情報から所定の演算によりＣＤ固有の識別情報を作成する。そして、該識別情報を検索キーとして、公衆ネットワーク上に設置された楽曲案内情報データベースサーバ２１に対してＣＤ１，の各楽曲の音楽ジャンルを検索する。ＣＤ再生部２に或る楽曲を再生させる際、コントロール部８Ａは再生楽曲について先に検索した音楽ジャンルに対応する最適な音質補正データを音質補正部１０に設定して音楽ジャンルに応じた音質補正を行わせる。
【選択図】　図１



【特許請求の範囲】
【請求項１】
１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取って再生出力する記録媒体再生手段と、
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから記録媒体に記録された楽曲の楽曲案内情報を検索する検索手段と、
音楽信号に対し音質または音場補正を行う補正手段と、
音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、検索手段で検索した楽曲案内情報の音楽ジャンル情報を用いて、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、
を備えたことを特徴とする再生装置。
【請求項２】
検索手段は、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、
を特徴とする請求項１記載の再生装置。
【請求項３】
前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を有し、検索手段は、最初に楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に登録するようにしたこと、
を特徴とする請求項１記載の再生装置。
【請求項４】
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成する識別情報作成手段と、
記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報の入力操作をする入力操作手段と、
入力操作手段で入力された楽曲案内情報を、識別情報作成手段で作成された識別情報と対応付けて楽曲案内情報データベース記憶手段に登録させる登録手段と、
を備えたことを特徴とする請求項１または３記載の再生装置。
【請求項５】
１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報と音楽信号を読み取る記録媒体読み取り手段と、
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから検索キーに対応する楽曲案内情報を検索する検索手段と、
記録媒体から読み取られた音楽信号を他の記録媒体に記録し、この際、検索手段で検索した楽曲案内情報の音楽ジャンル情報を用いて、記録楽曲の音楽ジャンル情報を音楽信号に対応付けて一緒に記録する記録手段と、
を備えたことを特徴とする記録装置。
【請求項６】
検索手段は、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、
を特徴とする請求項５記載の記録装置。
【請求項７】
前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を有し、検索手段は、最初に楽曲案内情報データベース記憶手段を対象に検索し、検索に

失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に登録するようにしたこと、
を特徴とする請求項５記載の記録装置。
【請求項８】
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成する識別情報作成手段と、
記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報の入力操作をする入力操作手段と、
入力操作手段で入力された楽曲案内情報を、識別情報作成手段で作成された識別情報と対応付けて楽曲案内情報データベース記憶手段に登録させる登録手段と、
を備えたことを特徴とする請求項５または７記載の記録装置。
【請求項９】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取り、再生出力する再生手段と、
音楽信号に対し音質または音場の補正を行う補正手段と、
音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、
を備えたことを特徴とする請求項５記載の記録装置。
【請求項１０】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取り、再生出力する再生手段と、
音楽信号に対し音質または音場の補正を行う補正手段と、
音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、
を備えたことを特徴とする再生装置。
【請求項１１】
１または複数の楽曲の音楽信号が記録された記録媒体から、音楽信号を読み取る記録媒体読み取り手段と、
楽曲の音楽ジャンルの入力操作をする入力操作手段と、
記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、入力操作手段で入力された音楽ジャンル情報を音楽信号に対応付けて一緒に記録する記録手段と、
を備えたことを特徴とする記録装置。
【請求項１２】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取り、再生出力する再生手段と、
音楽信号に対し音質または音場の補正を行う補正手段と、
音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、
を備えたことを特徴とする請求項１１記載の記録装置。
【請求項１３】
１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取る処理と、
記録媒体から読み取った所定の情報から記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから記録媒体に記録された楽曲の楽曲案内情報を検索する処理と、

記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、先に検索した楽曲案内情報の音楽ジャンル情報を用いて、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、
を行うようにしたことを特徴とするコンピュータプログラム。
【請求項１４】
検索処理では、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、
を特徴とする請求項１３記載のコンピュータプログラム。
【請求項１５】
検索処理では、最初に、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に記憶するようにしたこと、
を特徴とする請求項１３記載のコンピュータプログラム。
【請求項１６】
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、入力操作手段により入力された記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報と、識別情報作成処理で作成した識別情報を対応付けて楽曲案内情報データベース記憶手段に登録させる処理を含むこと、
を特徴とする請求項１３または１５記載のコンピュータプログラム。
【請求項１７】
１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取る処理と、
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから検索キーに対応する楽曲案内情報を検索する処理と、
記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、先に検索した楽曲案内情報の音楽ジャンル情報を用いて、記録楽曲の音楽ジャンル情報を音楽データに対応付けて一緒に記録させる処理と、
を行うようにしたことを特徴とするコンピュータプログラム。
【請求項１８】
検索処理では、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、
を特徴とする請求項１７記載のコンピュータプログラム。
【請求項１９】
検索処理では、最初に、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に記憶するようにしたこと、
を特徴とする請求項１７記載のコンピュータプログラム。
【請求項２０】
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、入力操作手段により入力された記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報と、識別情報作成処理で作成した識別情報を対応付けて楽曲案内情報データベース記憶手段に登録させる処理を含むこと、
を特徴とする請求項１７または１９記載のコンピュータプログラム。
【請求項２１】

楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、
前記他の記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、
を行うようにしたことを特徴とする請求項１７記載のコンピュータプログラム。
【請求項２２】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、
記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、
を行うようにしたことを特徴とするコンピュータプログラム。
【請求項２３】
１または複数の楽曲の音楽信号が記録された記録媒体から音楽信号を読み取る処理と、
記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、入力操作手段で入力された記録楽曲の音楽ジャンル情報を音楽信号に対応付けて一緒に記録する処理と、
を行うようにしたことを特徴とするコンピュータプログラム。
【請求項２４】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、
記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、
を行うようにしたことを特徴とする請求項２３記載のコンピュータプログラム。
【請求項２５】
１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取る処理と、
記録媒体から読み取った所定の情報から記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから記録媒体に記録された楽曲の楽曲案内情報を検索する処理と、
記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、先に検索した楽曲案内情報の音楽ジャンル情報を用いて、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、
を行うようにしたことを特徴とするコンピュータプログラムを記録した記憶媒体。
【請求項２６】
検索処理では、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、
を特徴とする請求項２５記載のコンピュータプログラムを記録した記憶媒体。
【請求項２７】
検索処理では、最初に、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に記憶するようにしたこと、

を特徴とする請求項２５記載のコンピュータプログラムを記録した記憶媒体。
【請求項２８】
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、入力操作手段により入力された記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報と、識別情報作成処理で作成した識別情報を対応付けて楽曲案内情報データベース記憶手段に登録させる処理を含むこと、
を特徴とする請求項２５または２７記載のコンピュータプログラムを記録した記憶媒体。
【請求項２９】
１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取る処理と、
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから検索キーに対応する楽曲案内情報を検索する処理と、
記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、先に検索した楽曲案内情報の音楽ジャンル情報を用いて、記録楽曲の音楽ジャンルを音楽信号に対応付けて一緒に記録させる処理と、
を行うようにしたことを特徴とするコンピュータプログラムを記録した記憶媒体。
【請求項３０】
検索処理では、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、
を特徴とする請求項２９記載のコンピュータプログラムを記録した記憶媒体。
【請求項３１】
検索処理では、最初に、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に記憶するようにしたこと、
を特徴とする請求項２９記載のコンピュータプログラムを記録した記憶媒体。
【請求項３２】
記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、入力操作手段により入力された記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報と、識別情報作成処理で作成した識別情報を対応付けて楽曲案内情報データベース記憶手段に登録させる処理を含むこと、
を特徴とする請求項２９または３１記載のコンピュータプログラムを記録した記憶媒体。
【請求項３３】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、
前記他の記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、
を行うようにしたことを特徴とする請求項２９記載のコンピュータプログラムを記録した記憶媒体。
【請求項３４】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、
記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、

を行うようにしたことを特徴とするコンピュータプログラムを記録した記憶媒体。
【請求項３５】
１または複数の楽曲の音楽信号が記録された記録媒体から音楽信号を読み取る処理と、
記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、入力操作手段で入力された記録楽曲の音楽ジャンル情報を音楽信号に対応付けて一緒に記録する処理と、
を行うようにしたことを特徴とするコンピュータプログラムを記録した記憶媒体。
【請求項３６】
楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、
記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、
を行うようにしたことを特徴とする請求項３５記載のコンピュータプログラムを記録した記憶媒体。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】
本発明は再生装置、記録装置、コンピュータプログラム、コンピュータプログラムを記録した記憶媒体に係り、とくに楽曲の音楽ジャンルに合わせた音質または音場補正を容易にできるようにした再生装置、記録装置、コンピュータプログラム、コンピュータプログラムを記録した記憶媒体に関する。
【０００２】
【従来の技術】
ＣＤ（コンパクトディスク）と呼ばれるソースメディアには１または複数の楽曲のディジタル化された音楽信号がＴＯＣ（Ｔａｂｌｅ　Ｏｆ　Ｃｏｎｔｅｎｔｓ）情報と呼ばれる管理情報とともに記録されている。ＣＤを再生するオーディオ機器の一例を図１５に示す。１はＣＤ、２はＣＤ再生部であり、外部から装填されたＣＤに記録されたＴＯＣ情報を読み取って出力したり、ＣＤにディジタル記録された音楽信号を読み取り、再生出力する。３はＣＤ１を載せるトレイ、４はトレイ３に載ったＣＤ１をＣＤ再生部２に対しローディング／アンローディングするローディング部、５は音楽信号の電力増幅を行うアンプ部、６はアンプ部５の出力で駆動されるスピーカ、７はＰＬＡＹキー、ダイレクト選曲キー等を有するキー入力部、８はコントロール部であり、全体的な再生制御を司る。
【０００３】
トレイ３に設けられたオープン／クローズキー（図示せず）を押してオープン操作をすると、ローディング部４はトレイ３を機器の外部へアンローディング移動し、ユーザがＣＤ１をトレイ３に載せたあと、オープン／クローズキーを押してクローズ操作をすると、ローディング部４はトレイ３を機器の内部へローディング移動し、ＣＤ再生部２へＣＤ１をセットさせる。コントロール部８はＣＤ再生部２にＣＤ１がセットされると、ＣＤ再生部２を制御し、ＴＯＣ情報を読み取らせて入力し、内部メモリ９に一時記憶する。キー入力部７でＰＬＡＹキーが押されて通常再生が指示されると、ＣＤ再生部２を制御し、最初の楽曲から順に再生させ、キー入力部７のダイレクト選曲キーで任意の所望曲が選曲されたのちＰＬＡＹキーが押されると、ＴＯＣ情報を参照してＣＤ再生部２を制御し、所望曲の開始位置をサーチさせたのち再生させる（なお、ＣＤ再生装置の関連文献として特開２０００－０９０６５０号公報参照）。
【０００４】
ところで、ＣＤ１からそのまま再生しただけの場合、楽曲の音楽ジャンルによっては低域が物足りなかったり、高域が目立ち過ぎたりすることが有る。また、音場の残響感が物足りなかったり、過剰だったりすることが有る。
この対策として、図１５の符号１０の如く音楽信号の音質補正を行う音質補正部を設け、

コントロール部８は内部メモリ９に音楽ジャンル（ロック、ポップス、クラシックなど）別の最適な音質補正データ（周波数特性データ）を記憶しておく。キー入力部７には音楽ジャンル選択キーを設け、ユーザが再生楽曲の音楽ジャンルを選択すれば、コントロール部８が選択された音楽ジャンルに対応する音質補正データを読み出し、音質補正部１０に設定して再生楽曲の音楽ジャンルに適した音質補正を行わせるようにすることが考えられる。
音場についても同様に、選択された音楽ジャンルに応じて音場補正を行わせるようにすることができる。

【０００５】

【発明が解決しようとする課題】

しかしながら、上記したオーディオ機器では、再生楽曲が変わる度にユーザが音楽ジャンルを指示しなければならず、操作が面倒であるという問題が残る。
本発明は再生楽曲が変わる度にユーザが音楽ジャンルを選択しなくても、再生楽曲の音楽ジャンルに適した音質または音場補正を掛けられるようにした再生装置、記録装置、コンピュータプログラム、コンピュータプログラムを記録した記憶媒体を提供することを、その目的とする。

【０００６】

【課題を解決するための手段】

請求項１記載の再生装置では、１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取って再生出力する記録媒体再生手段と、記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから記録媒体に記録された楽曲の楽曲案内情報を検索する検索手段と、音楽信号に対し音質または音場補正を行う補正手段と、音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、検索手段で検索した楽曲案内情報の音楽ジャンル情報を用いて、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、を備えたことを特徴としている。

【０００７】

請求項２は請求項１において、検索手段は、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、を特徴としており、請求項３は請求項１において、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を有し、検索手段は、最初に楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に登録するようにしたこと、を特徴としており、請求項４は請求項１または請求項３において、記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成する識別情報作成手段と、記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報の入力操作をする入力操作手段と、入力操作手段で入力された楽曲案内情報を、識別情報作成手段で作成された識別情報と対応付けて楽曲案内情報データベース記憶手段に登録させる登録手段と、を備えたことを特徴としている。

【０００８】

請求項５記載の記録装置では、１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報と音楽信号を読み取る記録媒体読み取り手段と、記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから検索キーに対応する楽曲案内情報を検索する検索手段と、記録媒体から読み取られた音楽信号を他の記録媒体に記録し、この際、検索手段で検索した楽曲案内情報の音楽ジャンル情報を用いて、記録楽曲の音楽ジャンル情報を音楽信号に対応付けて一緒に

記録する記録手段と、を備えたことを特徴としている。
【０００９】
請求項６は請求項５において、検索手段は、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、を特徴としており、請求項７は請求項５において、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を有し、検索手段は、最初に楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に登録するようにしたこと、を特徴としており、請求項８は請求項５または請求項７において、記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成する識別情報作成手段と、記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報の入力操作をする入力操作手段と、入力操作手段で入力された楽曲案内情報を、識別情報作成手段で作成された識別情報と対応付けて楽曲案内情報データベース記憶手段に登録させる登録手段と、を備えたことを特徴としており、請求項９は請求項５において、楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取り、再生出力する再生手段と、音楽信号に対し音質または音場の補正を行う補正手段と、音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、を備えたことを特徴としている。
【００１０】
請求項１０記載の再生装置は、楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取り、再生出力する再生手段と、音楽信号に対し音質または音場の補正を行う補正手段と、音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、を備えたことを特徴としている。
【００１１】
請求項１１記載の記録装置は、１または複数の楽曲の音楽信号が記録された記録媒体から、音楽信号を読み取る記録媒体読み取り手段と、楽曲の音楽ジャンルの入力操作をする入力操作手段と、記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、入力操作手段で入力された音楽ジャンル情報を音楽信号に対応付けて一緒に記録する記録手段と、を備えたことを特徴としている。
請求項１２は請求項１１において、楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取り、再生出力する再生手段と、音楽信号に対し音質または音場の補正を行う補正手段と、音楽ジャンル別の最適な音質または音場の補正データを補正データ記憶手段に記憶しており、再生楽曲の音楽ジャンルに対応する音質または音場の補正データを読み出し、補正手段に設定して音質または音場の補正を行わせる制御手段と、を備えたことを特徴としている。
【００１２】
請求項１３（２５）記載のコンピュータプログラム（コンピュータプログラムを記録した記憶媒体）では、１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取る処理と、記録媒体から読み取った所定の情報から記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから記録媒体に記録された楽曲の楽曲案内情報を検索する処理と、記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、先に検索した楽曲案内情報の音楽ジャンル情報を用いて、記録媒体中の再生楽曲の

音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、を行うようにしたことを特徴としている。

【００１３】

請求項１４（２６）は請求項１３（２５）において、検索処理では、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、を特徴としており、請求項１５（２７）は請求項１３（２５）において、検索処理では、最初に、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に記憶するようにしたこと、を特徴としており、請求項１６（２８）では請求項１３（２５）または請求項１５（２７）において、記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、入力操作手段により入力された記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報と、識別情報作成処理で作成した識別情報を対応付けて楽曲案内情報データベース記憶手段に登録させる処理を含むこと、を特徴としている。

【００１４】

請求項１７（２９）記載のコンピュータプログラム（コンピュータプログラムを記録した記憶媒体）では、１または複数の楽曲の音楽信号と管理情報が記録された記録媒体から、管理情報を読み取ったり、音楽信号を読み取る処理と、記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、該識別情報を検索キーとして、音楽ジャンルを含む楽曲案内情報データベースから検索キーに対応する楽曲案内情報を検索する処理と、記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、先に検索した楽曲案内情報の音楽ジャンル情報を用いて、記録楽曲の音楽ジャンル情報を音楽データに対応付けて一緒に記録させる処理と、を行うようにしたことを特徴としている。

【００１５】

請求項１８（３０）では請求項１７（２９）において、検索処理では、外部のネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するようにしたこと、を特徴としており、請求項１９（３１）では請求項１７（２９）において、検索処理では、最初に、前記検索キーと楽曲案内情報を対応付けて記憶可能な楽曲案内情報データベース記憶手段を対象に検索し、検索に失敗したときネットワーク上に設置された楽曲案内情報データベースサーバに対して検索を実行するとともに、検索に成功したときは、検索キーと楽曲案内情報を対応付けて楽曲案内情報データベース記憶手段に記憶するようにしたこと、を特徴としており、請求項２０（３２）では請求項１７（２９）または請求項１９（３１）において、記録媒体から読み取った所定の情報から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成し、入力操作手段により入力された記録媒体に記録された各楽曲の音楽ジャンルを含む楽曲案内情報と、識別情報作成処理で作成した識別情報を対応付けて楽曲案内情報データベース記憶手段に登録させる処理を含むこと、を特徴としており、請求項２１（３３）では請求項１７（２９）において、楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、前記他の記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、を行うようにしたことを特徴としている。

【００１６】

請求項２２（３４）記載のコンピュータプログラム（コンピュータプログラムを記録した記憶媒体）では、楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、記録媒体から読み

取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、を行うようにしたことを特徴としている。

【００１７】

請求項２３（３５）記載のコンピュータプログラム（コンピュータプログラムを記録した記憶媒体）では、１または複数の楽曲の音楽信号が記録された記録媒体から音楽信号を読み取る処理と、記録媒体から読み取った音楽信号を他の記録媒体に記録し、この際、入力操作手段で入力された記録楽曲の音楽ジャンル情報を音楽信号に対応付けて一緒に記録する処理と、を行うようにしたことを特徴としている。

請求項２４（３６）では請求項２３（３５）において、楽曲単位で音楽信号が対応する音楽ジャンル情報とともに記録された前記他の記録媒体から、音楽信号と対応する音楽ジャンル情報を読み取る処理と、記録媒体から読み取った音楽信号を再生出力させ、この際、音楽ジャンル別に定められた音質または音場の補正データに従い、記録媒体中の再生楽曲の音楽ジャンルに対応する音質または音場の補正データに基づき音楽信号に対して音質または音場の補正をする処理と、を行うようにしたことを特徴としている。

【００１８】

請求項１、４、５、８、１３、１６、１７、２０、２５、２８、２９、３２では、例えば記録媒体から読み取った管理情報の全部または一部から、記録媒体の固有の識別情報または記録媒体中の楽曲単位の固有の識別情報を作成するようにしても良い。

請求項５、１１、１７、２３、２９、３５では、音楽信号を他の記録媒体に記録する際、非圧縮の音楽信号を圧縮して記録しても良い。

請求項９、１０、１２、２１、２２、２４、２３、３４、３６では、記録媒体から読み出した音楽信号が圧縮されている場合は、圧縮方式に対応する伸長方式で伸長して音楽信号を再生するようにする。伸長後、圧縮で欠落した信号データを補正するようにしても良い。

【００１９】

【発明の実施の形態】

次に、本発明に係る第１の実施の形態を図１を参照して説明する。図１は本発明に係るオーディオ機器の構成を示すブロック図であり、図１５と同一の構成部分には同一の符号が付してある。

1_1、1_2、1_3、・・はユーザ手持ちの録音済のＣＤであり、各々、ＴＯＣ領域にＴＯＣ情報が記録されており、プログラム領域に１または複数の楽曲の音楽信号のディジタルデータが非圧縮で記録されている。２はＣＤ再生部であり、外部から装填されたＣＤに記録されたＴＯＣ情報を読み取って出力したり、ＣＤに記録された音楽信号のディジタルデータを読み取り、音楽信号（ここではディジタル音楽信号とする）を再生出力する。３はＣＤ1_iを載せるトレイ、４はトレイ３に載ったＣＤ1_iをＣＤ再生部２に対しローディング／アンローディングするローディング部、５は音楽信号（アナログ音楽信号）の電力増幅を行うアンプ部、６はアンプ部５の出力で駆動されるスピーカ、７Ａはキー入力部であり、ＣＤ1_iの通常再生、ＣＤ1_iのダイレクト選曲再生を指示するためのＣＤ用ＰＬＡＹキー、ＣＤ用ダイレクト選曲キーを有するほか、ＣＤ1_iから後述するハードディスクで構成された大容量記録媒体への録音を指示するためのＲＥＣキー、録音する際の録音圧縮型式を選択する録音圧縮型式選択キー、楽曲の音楽ジャンル、タイトル等を入力する文字キー、大容量記録媒体に録音された楽曲の中から所望楽曲を選択して再生させるための大容量記録媒体用ダイレクト選曲キーと大容量記録媒体用ＰＬＡＹキーを有する。

【００２０】

１１はハードディスク、半導体メモリ等で構成された楽曲案内情報データベース記憶部であり、ＣＤの楽曲毎の音楽ジャンル、タイトルなどの楽曲案内情報を、ＣＤの固有の識別情報ＩＤ（ＣＤ）またはＣＤの楽曲毎の固有の識別情報ＩＤ（ＣＤ－ＴＮＯ）と対応付けて記憶可能である（ＴＮＯはトラックナンバを示す）。ＣＤの固有の識別情報ＩＤ（ＣＤ

）は個々のＣＤをユニークに区別する情報であり、ＣＤのＴＯＣ情報の全部または一部から所定の演算で作成する。ＣＤの楽曲毎の固有の識別情報ＩＤ（ＣＤ－ＴＮＯ）は、ＣＤの固有の識別情報ＩＤ（ＣＤ）に楽曲のＴＮＯ（トラックナンバ）を最後に付加することで作成する。楽曲案内情報データベース記憶部１１はＣＤ１$_i$がＣＤ再生部２にセットされた直後に参照される。楽曲案内情報データベース記憶部１１にはユーザがトラックナンバを指定して入力した音楽ジャンル、タイトル等の楽曲案内情報、または、後述するコントロール部がＣＤの固有の識別情報ＩＤ（ＣＤ）またはＣＤの楽曲毎の固有の識別情報ＩＤ（ＣＤ－ＴＮＯ）を検索キーにして外部の楽曲案内情報データベースサーバから検索して得た結果が登録される。

【００２１】

１２は表示部であり、ＣＤ再生部２にセットされたＣＤ１$_i$の楽曲毎の音楽ジャンル、タイトルをトラックナンバと対応付けて表示したり、ＣＤ１$_i$の内、録音対象の楽曲のトラックナンバ、音楽ジャンル、タイトル、録音圧縮型式を表示したり、大容量記録媒体１３の内、再生対象の楽曲のトラックナンバ、音楽ジャンル、タイトル、録音圧縮型式を表示したりする。

【００２２】

１３はハードディスクで構成された大容量記録媒体であり、楽曲単位で、音楽信号の非圧縮または圧縮されたディジタルデータが対応する楽曲案内情報、録音圧縮型式情報と一緒に記録（録音）される。大容量記録媒体１３では録音順にトラックナンバが割り当てられるものとする。１４は録音時に、ＣＤ再生部２から出力された音楽信号（ディジタル音楽信号）を所定の録音圧縮型式に変換して圧縮する圧縮部、１５は録音圧縮型式に応じた伸長方式で伸長する復元部、１６は記録・読み取り部であり、後述するコントロール部の録音制御により、１曲単位で、圧縮部１４から入力された音楽信号のディジタルデータをコントロール部から入力された対応する楽曲案内情報、録音圧縮型式情報と一緒に大容量記録媒体１３に記録させる。また、コントロール部の指示に従い、大容量記録媒体１３から所望の楽曲の楽曲案内情報、録音圧縮型式情報を読み取りコントロール部へ出力したり、コントロール部の再生制御に従い、大容量記録媒体１３から所望の楽曲の音楽信号のディジタルデータを読み取り、復元部１５へ出力したりする。１７は大容量記録媒体１３の所望の録音楽曲を再生する際、音楽信号のディジタルデータが圧縮データであったとき、圧縮で欠落した信号のサンプルデータを補正可能な場合に補正する圧縮音楽補正部、１８はＣＤ再生部２の出力と圧縮音楽補正部１７の出力を切り替えて音質補正部１０へ出力するスイッチである。音質補正部１０はディジタル領域で音質補正を行ったのち、Ｄ／Ａ変換してアンプ部５へ出力する。

【００２３】

１９はコントロール部の制御で外部の公衆ネットワーク２０を介して該公衆ネットワーク２０の上に設置された楽曲案内情報データベースサーバ２１と双方向の通信をする通信部（モデム）である。楽曲案内情報データベースサーバ２１は多数のＣＤの楽曲毎の音楽ジャンル、タイトルなどの楽曲案内情報を、ＣＤの固有の識別情報ＩＤ（ＣＤ）及びＣＤの楽曲毎の固有の識別情報ＩＤ（ＣＤ－ＴＮＯ）と対応付けて記憶した楽曲案内情報データベース装置２２を有しており（図８参照）、外部からＩＤ（ＣＤ）を検索キーとする検索要求が有ると、楽曲案内情報データベース装置２２の中から検索キーに対応するＣＤの全楽曲の楽曲案内情報を検索して要求元に返信する。また、外部からＩＤ（ＣＤ－ＴＮＯ）を検索キーとする検索要求が有ると、楽曲案内情報データベースの中から検索キーに対応するＣＤの楽曲の楽曲案内情報を検索して要求元に返信する（なお、楽曲案内情報データベースサーバ２１の関連文献として特開２００１－２９７５１５号公報参照）。

【００２４】

８Ａはマイコン構成のコントロール部であり、オーディオ機器の各部を制御し、ＣＤを再生させたり、ＣＤから大容量記録媒体への録音をさせたり、大容量記録媒体の録音楽曲の再生をさせたりする。再生時、音質補正部１０を制御して再生楽曲の音楽ジャンルに応じた音質補正を行わせる。コントロール部８ＡはＣＤ再生部２にセットされたＣＤ１$_i$のＴ

ＯＣ情報から所定の演算によりＣＤの固有の識別情報ＩＤ（ＣＤ）またはＣＤの楽曲毎の固有の識別情報ＩＤ（ＣＤ－ＴＮＯ）を作成し、楽曲案内情報データベース記憶部１１からＣＤの楽曲毎の楽曲案内情報を検索する。検索に成功すれば、内部メモリ９Ａに一時記憶し、表示部１２にトラックナンバに対応付けて音楽ジャンル、タイトルを表示する。検索に失敗すると、通信部１８を制御して、ＣＤの固有の識別情報ＩＤ（ＣＤ）またはＣＤの楽曲毎の固有の識別情報ＩＤ（ＣＤ－ＴＮＯ）を検索キーとする検索要求信号を公衆ネットワーク２０を介して楽曲案内情報データベースサーバ２１に送信させてＣＤの楽曲毎の楽曲案内情報を検索する。返信された検索結果が通信部１８で受信されると内部メモリ９Ａに一時記憶し、検索に成功していれば表示部１２にトラックナンバに対応付けて音楽ジャンル、タイトルを表示し、また、楽曲案内情報データベース記憶部１１に登録する。ＣＤ用ダイレクト選曲キーでトラックナンバが指定されて、音楽ジャンル、タイトルが入力されると、内部メモリ９Ａに一時記憶し（すでに同一トラックナンバの楽曲案内情報が存在するときは入力内容で書き換える）、楽曲案内情報データベース記憶部１１に追加登録する。

【００２５】

コントロール部８Ａは予め、内部メモリ９Ａに音楽ジャンル別の最適な音質補正データ（ここでは音質補正部１０に設定するための周波数特性データとする）を記憶しており、ユーザによりＣＤの全楽曲または或る所望楽曲の再生が指示されると、コントロール部８Ａはスイッチ１８をａ側に切り替え、ＣＤ再生部２を制御して全楽曲または所望楽曲を再生させるとともに、再生楽曲の再生開始時点で再生楽曲の音楽ジャンルに対応した音質補正データを読み出し、音質補正部１０に設定する。また、ＣＤの或る所望楽曲の録音時、ＣＤ再生部２を制御して所望楽曲の再生を開始させるとともに、録音対象楽曲の楽曲案内情報と録音圧縮型式情報を記録・読み取り部１６に出力しながら記録・読み取り部１６に対する録音制御をし、圧縮部１４から出力された音楽信号のディジタルデータを、対応する楽曲案内情報、録音圧縮型式情報と一緒に大容量記録媒体１３に記録させる。コントロール部８Ａは録音圧縮型式に応じて圧縮部１４に圧縮させたり、非圧縮のまま出力させたりする。また、大容量記録媒体用ダイレクト選曲キーで大容量記録媒体１３に対してトラックナンバ（大容量記録媒体１３の録音楽曲は録音順にトラックナンバが０１から昇順に割当てられる）が指定され、大容量記録媒体用ＰＬＡＹキーが押されて録音楽曲の再生操作がされると、コントロール部８Ａはスイッチ１８をｂ側に切り替え、記録・読み取り部１６を制御して、大容量記録媒体１３から該当するトラックナンバの録音楽曲の音楽信号のディジタルデータに対応付けられた楽曲案内情報、録音圧縮型式情報を読み取らせて入力し、内部メモリ９Ａに一時記憶するとともに表示させ、復元部１５に録音圧縮型式を設定して対応する伸長方式で伸長させ（録音圧縮型式が非圧縮の場合は、復元部１５はスルーモードとなり、音楽信号のディジタルデータを所定のサンプリングレートで出力させる）、また、コントロール部８Ａは録音圧縮型式が圧縮であったとき、圧縮で欠落した信号のサンプルデータを補正可能な場合に圧縮音楽補正部１７に補正を指示する。そして、記録・読み取り部１６を制御して、大容量記録媒体１３から所望録音楽曲の音楽信号のディジタルデータを読み取らせて復元部１５へ出力させるとともに再生対象の録音楽曲の音楽ジャンルに対応した音質補正データを読み出し、音質補正部１０に設定する。

【００２６】

図２～図４はコントロール部８ＡによるＣＤの再生・録音制御処理を示すフローチャート、図５はコントロール部８Ａによる録音楽曲の再生制御処理を示すフローチャート、図６は楽曲案内情報データベース記憶部１１の記憶内容の説明図、図７は楽曲案内情報データベース装置２２の記憶内容の説明図、図８と図９は表示部１２の表示例の説明図であり、以下、これらの図を参照して説明する。

なお、ここでは、楽曲案内情報は音楽ジャンルとタイトルとする。また、予め、楽曲案内情報データベース記憶部１１には何も記憶されていないものとする。また、楽曲案内情報の検索キーとして、ＣＤの固有の識別情報を用いるものとするが、ＣＤの楽曲毎の固有の識別情報を用いても良い。

【００２７】
（１）楽曲案内情報検索・楽曲案内情報入力
トレイ３に設けられたオープン／クローズキー（図示せず）を押してオープン操作をすると、ローディング部４はトレイ３を機器の外部へアンローディング移動し、ユーザがトラックナンバ０１～０５の５曲入りのＣＤ１$_1$をトレイ３に載せたあと、オープン／クローズキーを押してクローズ操作をすると、ローディング部４はトレイ３を機器の内部へローディング移動し、ＣＤ再生部２へＣＤ１$_1$をセットさせる。コントロール部８ＡはＣＤ再生部２にＣＤ１$_1$がセットされると、ＣＤ再生部２を制御してＴＯＣ情報を読み取らせて内部メモリ９Ａに一時記憶する（図２のステップＳ１０、Ｓ１１）。ＴＯＣ情報の全部または一部を使って所定の演算によりＣＤ１$_1$の固有の識別情報ＩＤ（ＣＤ１$_1$）を作成し、該識別情報ＩＤ（ＣＤ１$_1$）を検索キーとして楽曲案内情報データベース記憶部１１を対象にＣＤ１$_1$の全楽曲の楽曲案内情報を検索する（ステップＳ１２、Ｓ１３）。検索に成功したときは結果を内部メモリ９Ａに一時記憶し、表示部１２にトラックナンバ別に楽曲案内情報を表示させるが（ステップＳ１４でＹＥＳ、Ｓ１５、Ｓ１６）、ここでは、検索不能となるので（ステップＳ１４でＮＯ）、続いて、通信部１８を制御し、ＣＤ１$_1$の固有の識別情報ＩＤ（ＣＤ１$_1$）を検索キーとする検索要求信号を公衆ネットワーク２０を介して楽曲案内情報データベースサーバ２１宛に送信させる（ステップＳ１７）。
【００２８】
楽曲案内情報データベースサーバ２１は検索要求信号を受けると、付属の楽曲案内情報データベース装置２２に対して検索キーを用いて検索をし、成功すれば識別情報ＩＤ（ＣＤ１$_1$）に対応して登録された全ての楽曲の楽曲案内情報を読み出し、要求元に返信する。検索不能であったときはエラー通知を返信する。楽曲案内情報またはエラー通知が通信部１８で受信されると、受信情報を入力したコントロール部８Ａは内部メモリ９Ａに一時記憶し（ステップＳ１８）、検索に成功していたときは識別情報ＩＤ（ＣＤ１$_1$）に対応付けて今回入手した全楽曲の楽曲案内情報を楽曲案内情報データベース記憶部１１に登録させ（ステップＳ１９、Ｓ２０。図６（１）参照）、表示部１２にトラックナンバと対応付けて楽曲案内情報をリスト表示する（ステップＳ１６。図８（１）参照）。これにより、あとで同じＣＤ１$_1$をＣＤ再生部２に再セットしたときは、楽曲案内情報データベース記憶部１１を対象にして楽曲案内情報の高速検索が可能となる。若し、ＣＤ１$_1$のトラックナンバ０３について音楽ジャンルまたはタイトルが欠けているか間違っており、マニュアルで入力したい場合、ＣＤ用ダイレクト選曲キーでトラックナンバ０３を選択し、文字キーで音楽ジャンルまたはタイトルを入力すると、内部メモリ９Ａに一時記憶されるとともに（既にトラックナンバ０３の音楽ジャンルまたはタイトルが記憶されているときは書換えられる）、楽曲案内情報データベース記憶部１１に登録させる（ステップＳ２１、Ｓ２２。図６（２）、図８（２）参照）。そして、表示部１２にトラックナンバと対応付けて楽曲案内情報をリスト表示する（ステップＳ１６。図８（２）参照）。
【００２９】
（２）ＣＤの再生
ユーザがＣＤ１$_1$の全楽曲を再生したい場合、ＣＤ用ＰＬＡＹキーを押す。すると、コントロール部８Ａは図３のステップＳ３０、Ｓ３１でＹＥＳと判断し、スイッチ１８をａ側に切り替え（ステップＳ３２）、ＣＤ再生部２を制御して１番目の楽曲の先頭位置をサーチさせサーチが終わると（ステップＳ３３、Ｓ３４）、内部メモリ９Ａにトラックナンバ０１の楽曲の音楽ジャンルが一時記憶されている場合は、対応する音質補正データを読み出して音質補正部１０に設定（トラックナンバ０１の楽曲の音楽ジャンルが一時記憶されていない場合は予め定められた標準（例えばフラット）の音質補正データを音質補正部１０に設定）し（ステップＳ３５）、ＣＤ再生部２を制御して１番目の楽曲の先頭位置から再生を開始させる（ステップＳ３６）。ＣＤ再生部２から出力された１番目の楽曲の音楽信号（ディジタル音楽信号）は音声補正部１０により音楽ジャンルに適した音質補正がされたのち、アナログ音楽信号に変換されてアンプ部５へ出力される。その後、１番目の楽曲の最後まで再生が終わると（ステップＳ３７でＹＥＳ）、まだ次の楽曲が存在する場合

は、ＣＤ再生部２を制御して２番目の楽曲の先頭位置をサーチさせサーチが終わると（ステップＳ３８、Ｓ３９、Ｓ３４）、内部メモリ９Ａにトラックナンバ０２の楽曲の音楽ジャンルが一時記憶されている場合は、対応する音質補正データを読み出して音質補正部１０に設定（トラックナンバ０２の楽曲の音楽ジャンルが一時記憶されていない場合は予め定められた標準の音質補正データを音質補正部１０に設定）し（ステップＳ３５）、ＣＤ再生部２を制御して２番目の楽曲の先頭位置から再生を開始させる（ステップＳ３６）。以下、同様にして最後の楽曲まで再生させ、最後の楽曲の最後まで再生が終わると、再生を停止させる（ステップＳ３８でＮＯ、Ｓ４０）。

【００３０】

ユーザがＣＤ１」の例えばトラックナンバ０３の楽曲を再生したい場合、ＣＤ用ダイレクト選曲キーでトラックナンバ０３を選択し、ＰＬＡＹキーを押す。すると、コントロール部８Ａはステップ３０でＹＥＳ、Ｓ３１でＮＯ、Ｓ４１でＹＥＳと判断し、スイッチ１８をａ側に切り替え（ステップＳ４２）、ＣＤ再生部２を制御して３番目の楽曲の先頭位置をサーチさせサーチが終わると（ステップＳ４３、Ｓ４４）、内部メモリ９Ａにトラックナンバ０３の楽曲の音楽ジャンルが一時記憶されている場合は、対応する音質補正データを読み出して音質補正部１０に設定（トラックナンバ０３の楽曲の音楽ジャンルが一時記憶されていない場合は予め定められた標準の音質補正データを音質補正部１０に設定）し（ステップＳ４５）、ＣＤ再生部２を制御して３番目の楽曲の先頭位置から再生を開始させる（ステップＳ４６）。３番目の楽曲の最後まで再生が終わると、再生を停止させる（ステップＳ４７、Ｓ４０）。

このようにして、ユーザが再生楽曲について一々、音楽ジャンルに合わせた音質補正の切り替え操作をしなくても音楽ジャンルに合わせた最適な音質補正が実現される。

【００３１】

（３）ＣＤの録音

例えば、ユーザがＣＤ１」の３番目の楽曲の録音をＭＰＥＧ１レイヤ３の録音圧縮型式にて録音したい場合、録音圧縮型式選択キーで「ＭＰ３」を選択し、ＣＤ用ダイレクト選曲キーでトラックナンバ０３を選択し、ＲＥＣキーを押す。コントロール部８Ａは録音圧縮型式が選択されると、選択された圧縮型式を内部メモリ９Ａに一時記憶し、圧縮部１４に選択された録音圧縮型式を設定する（図４のステップＳ５０～Ｓ５２。なお、録音圧縮型式が非圧縮の場合、圧縮部１４はスルーモードとなり、ＣＤ再生部２から出力された音楽信号（ディジタル音楽信号）をそのまま出力する）。そして、ＣＤ用ダイレクト選曲キーでトラックナンバ０３が選択され、ＲＥＣキーが押されると、コントロール部８Ａはステップ５３でＹＥＳと判断し、録音対象に選択されたＣＤの楽曲のトラックナンバ、音楽ジャンル、タイトル、録音先の大容量記録媒体１３で割り当てられるトラックナンバとともに録音中であることを表示部１２に表示させる（ステップＳ５４、Ｓ５５。図９（１）参照）。そして、ＣＤ再生部２を制御して３番目の楽曲の先頭位置をサーチさせて再生を開始させるとともに（ステップＳ５６）、内部メモリ９Ａに一時記憶されたトラックナンバ０３の楽曲の楽曲案内情報と録音圧縮型式情報を与えながら記録・読み取り部１６に対し録音開始制御をする。ＣＤ再生部２から再生された音楽信号は圧縮部１４で所望の圧縮型式に変換されてデータ出力される。記録・読み取り部１６は録音開始制御を受けて、圧縮部１４から入力した音楽信号のディジタルデータを対応する楽曲案内情報及び録音圧縮型式情報と一緒に大容量記録媒体１３に記録（録音）させる（ステップＳ５７）。なお、内部メモリ９ＡにＣＤ１」のトラックナンバ０３の楽曲の楽曲案内情報が一時記憶されていない場合は、楽曲案内情報をブランクとして大容量記録媒体１３に記録（録音）させる。３番目の楽曲の最後まで再生が終わると、再生と録音を停止させ、録音中表示を消す（ステップＳ５８～Ｓ６０）。

【００３２】

ＣＤ１」の他の楽曲についても同様にして録音できる。ＣＤ１」を他のＣＤ１」と交換したいとき、トレイオープン／クローズキー（図示せず）を押すと、ローディング部４がトレイ３をアンローディング移動させる。ＣＤ再生部２からＣＤ１」が取り出されると、コ

ントロール部８Ａは表示部１２に表示させていたトラックナンバ別の楽曲案内情報を消す（図２のステップＳ２３、Ｓ２４）。ＣＤ１$_1$をＣＤ１$_2$へ交換してＣＤ再生部２へセットさせることで、ＣＤ１$_2$に記録された楽曲についても同様に再生及び録音できる。

【００３３】

（４）大容量記録媒体に録音された楽曲の再生

例えば、大容量記録媒体１３の先頭の録音楽曲を再生したい場合、大容量記録媒体用ダイレクト選曲キーでトラックナンバ０１を選択し、大容量記録媒体用ＰＬＡＹキーを押す。すると、コントロール部８Ａは、図５のステップＳ７０でＹＥＳと判断し、スイッチ１８をｂ側に切り替えさせ（ステップＳ７１）、記録・読み取り部１６に指示して大容量記録媒体１３から先頭の録音楽曲の音楽信号データに対応付けられた楽曲案内情報と録音圧縮型式を読み取らせて入力し、内部メモリ９Ａに一時記憶するとともに表示部１２に表示させ（ステップＳ７２～Ｓ７４）、復元部１５に今回読み取った録音圧縮型式を設定する（ステップＳ７５。なお、設定された録音圧縮型式が非圧縮の場合、復元部１５はスルーモードとなり、記録・読み取り部１６から入力した音楽信号のディジタルデータを所定のサンプリングレートで出力する）。また、録音圧縮型式が圧縮であり、圧縮で欠落した信号のサンプルデータを補正可能な場合に圧縮音楽補正部１７に補正を指示する（ステップＳ７６～ＳＳ７８）。若し、非圧縮の場合、または圧縮で欠落した信号のサンプルデータを補正不能な場合は非補正を指示し、圧縮音楽補正部１７をスルーモードとする（ステップＳ７６、Ｓ７７、Ｓ７９）。また、内部メモリ９Ａに大容量記録媒体１３のトラックナンバ０１の録音楽曲の音楽ジャンルが一時記憶されている場合は、対応する音質補正データを読み出して音質補正部１０に設定（若し、トラックナンバ０１の録音楽曲の音楽ジャンルが一時記憶されていない場合は予め定められた標準の音質補正データを音質補正部１０に設定）する（ステップＳ８０）。

【００３４】

そして、記録・読み取り部１６に対し再生制御して、大容量記録媒体１３から１番目の録音楽曲の音楽信号のディジタルデータを先頭から順に読み取らせて復元部１５へ出力させる（ステップＳ８１）。復元部１５は音楽信号のディジタルデータが圧縮されている場合、録音圧縮型式に応じた復元方式で伸長した音楽信号（所定のサンプリングレートのディジタル音楽信号）を出力する（音楽信号のデータが圧縮されていない場合は、入力された音楽信号のディジタルデータを所定のサンプリングレートで出力する）。圧縮されていて、圧縮で欠落した信号のサンプルデータを補正可能な場合、圧縮音楽補正部１７により圧縮で欠落した信号のサンプルデータが補正されたのちスイッチ１８を介して音質補正部１０に入力され、音楽ジャンルに適した音質補正がされる。音質補正部１０は音質補正後、アナログ音楽信号に変換して出力する。圧縮されていないか、圧縮されていても圧縮で欠落したサンプルデータを補正不能な場合、復元部１５の出力がそのままスイッチ１８を介して音質補正部１０に入力される。

大容量記録媒体１３の１番目の録音楽曲の音楽信号の再生が終われば、コントロール部８Ａは記録・読み取り部１６に対し読み取り停止制御をし、再生対象の録音楽曲についてのトラックナンバ、楽曲案内情報、録音圧縮型式の表示を消す（ステップＳ８２～Ｓ８４）。

大容量記録媒体１３の他の録音楽曲の再生も同様にして行うことができる。

このようにして、ユーザが大容量記録媒体１３の録音楽曲を再生させる際に、。楽曲毎に一々、音楽ジャンルに合わせた音質補正の切り替え操作をしなくても音楽ジャンルに合わせた最適な音質補正が実現される。

【００３５】

この実施の形態によれば、所望のＣＤをＣＤ再生部２にセットさせると、自動的に楽曲案内情報データベース記憶部１１と公衆ネットワーク上に設置された楽曲案内情報データベースサーバ２１に対して各楽曲の楽曲案内情報の検索がされ、かつ楽曲の再生時に音楽ジャンルに最適な音質補正が自動的に掛けられるので、ユーザが一々再生楽曲毎に音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。公衆ネットワーク上に設置さ

れた楽曲案内情報データベースサーバ２１に対して検索して得た各楽曲の楽曲案内情報は楽曲案内情報データベース記憶部１１にＣＤ固有の識別情報と対応付けて登録されるので、後で同じＣＤを再セットして再生させる場合、楽曲案内情報データベースサーバ２１に対し再度検索要求する必要が無くなる。また、マニュアル入力で楽曲案内情報を楽曲案内情報データベース記憶部１１に追加登録することもできるので、楽曲案内情報データベースサーバ２１に対する検索に失敗したときにも対応できる。

【００３６】

ＣＤから大容量記録媒体１３へ楽曲単位で音楽信号を録音する場合、音楽信号とともに楽曲案内情報が対応付けて一緒に記録され、大容量記録媒体１３の所望録音楽曲の再生時に、音楽信号に対応付けられた音楽ジャンルを用いて音楽ジャンルに最適な音質補正が自動的に掛けられる。ユーザが大容量記録媒体１３の録音楽曲の再生時に、一々音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。ＣＤをＣＤ再生部２にセットしたあとの検索で、ＣＤの全部または幾つかの楽曲について、音楽ジャンルの検索が出来なかった場合でも、ＣＤの或る楽曲を大容量記録媒体１３に録音したい場合、ユーザが当該楽曲の少なくとも音楽ジャンルをマニュアル入力しておけば、所望楽曲の音楽データに対応付けて音楽ジャンルを一緒に大容量記録媒体１３に記録させることができ、あとで当該録音楽曲を再生させる度に一々音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。

【００３７】

次に、図１０を参照して本発明の第２の実施の形態を説明する。図１０は図１のオーディオ機器と同等な機能を具現するパーソナルコンピュータの構成を示すブロック図であり、図１と同一の構成部分には同一の符号が付してある。

1_1、1_2、・・はユーザが手持ちのＣＤ、１００は再生・録音プログラムを記録したＣＤ－ＲＯＭ、３００はパーソナルコンピュータであり、この内、３０はＣＤ－ＲＯＭ読み取り部であり、外部から装填されたＣＤ1_iまたはＣＤ－ＲＯＭ１００に記録されたＴＯＣ情報を読み取って出力したり、ＣＤ1_iまたはＣＤ－ＲＯＭ１００のプログラム領域に記録された音楽信号のディジタルデータ、再生・録音プログラムデータを読み取って出力する。３１はＣＤ1_iまたはＣＤ－ＲＯＭ１００を載せるトレイ、３２はトレイ２１に載ったＣＤ1_iまたはＣＤ－ＲＯＭ１００をＣＤ－ＲＯＭ読み取り部３０に対しローディング／アンローディングするローディング部、５は音楽信号（アナログ音楽信号）の電力増幅を行うアンプ部、６はアンプ部５の出力で駆動されるスピーカ、３３はキー入力部であり、楽曲の音楽ジャンル、タイトル等の入力、ＣＤ1_iの通常再生、ＣＤ1_iのダイレクト選曲再生、録音圧縮型式の選択、ＣＤ1_iから後述するハードディスクへの録音、ハードディスクに録音された録音楽曲の中のら所望楽曲の再生等の各種操作を行う。

【００３８】

３４はハードディスク、３５は表示部、３６はメモリ、３７は音楽信号のデータをアナログ音楽信号に変換して出力する音声出力部、３８は通信部（モデム）、３９は再生・録音プログラムに基づき、ＣＤの再生と録音、ＣＤから録音した楽曲の再生の各処理を実行するＣＰＵである。ＣＤ－ＲＯＭ読み取り部３０、キー入力部３３、ハードディスク３４、表示部３５、メモリ３６、音声出力部３７、ＣＰＵ３９はバス接続されている。ハードディスク３４はプログラム格納領域３４ａ、楽曲案内情報データベース記憶領域３４ｂ、音楽データ記憶領域３４ｃを含み、ＣＤ－ＲＯＭ１００に記録された再生・録音プログラムをプログラム格納領域３４ａに記憶できるようになっている。楽曲案内情報データベース領域３４ｂは図１の楽曲案内情報データベース記憶部１１に相当し、音楽データ記憶領域３４ｃは大容量記録媒体１３に相当する。

【００３９】

ＣＤ－ＲＯＭ１００に記録された再生・録音プログラムがＣＤ－ＲＯＭ読み取り部３０により読み取られてハードディスク３４に格納済であるとする。この再生・録音プログラムには、予め、音楽ジャンル別の音質補正データが含まれているものとする。再生・録音プログラムに基づきＣＰＵ３９は図１のコントロール部８Ａ、圧縮部１４、復元部１５、記

録・読み取り部１６、圧縮音楽補正部１７の有する各機能と同等の処理を実行する。通信部３８は外部の公衆ネットワーク２０を介して楽曲案内情報データベースサーバ２１と通信可能である。

【００４０】

図１１～図１３は再生・録音プログラムに基づきＣＰＵ３９が実行するＣＤ再生・録音処理を示すフローチャート、図１４はＣＤ再生・録音プログラムに基づきＣＰＵ３９が実行するハードディスク中の録音楽曲の再生処理を示すフローチャートであり、以下、これらの図を参照して説明する。

なお、ここでは、楽曲案内情報は音楽ジャンルとタイトルとする。また、予め、楽曲案内情報データベース記憶領域３４ｂには何も記憶されていないものとする。また、楽曲案内情報の検索キーとして、ＣＤの固有の識別情報を用いるものとするが、ＣＤの楽曲毎の固有の識別情報を用いても良い。

【００４１】

（１）楽曲案内情報検索・楽曲案内情報入力

ユーザがトラックナンバ０１～０５の５曲入りのＣＤ1_1をトレイ３１に載せたあと、オープン／クローズキーを押してクローズ操作をすると、ローディング部３２はトレイ３１をＣＤ－ＲＯＭ読み取り部３０へローディング移動し、ＣＤ－ＲＯＭ読み取り部３０へＣＤ1_1をセットさせる。ＣＰＵ３９はＣＤ－ＲＯＭ読み取り部３０にＣＤ1_1がセットされると、ＣＤ－ＲＯＭ読み取り部３０を制御してＴＯＣ情報を読み取らせてメモリ３６に一時記憶する（図１１のステップＳ１０´、Ｓ１１´）。ＴＯＣ情報の全部または一部を使って所定の演算によりＣＤ1_1の固有の識別情報ＩＤ（ＣＤ1_1）を作成し、該識別情報ＩＤ（ＣＤ1_1）を検索キーとして楽曲案内情報データベース記憶領域３４ｂを対象に検索する（ステップＳ１２´、Ｓ１３´）。検索に成功したときは結果をメモリ３６に一時記憶し、表示部３５にトラックナンバ別に楽曲案内情報を表示させるが（ステップＳ１４´でＹＥＳ、Ｓ１５´、Ｓ１６´）、ここでは、検索不能となるので（ステップＳ１４´でＮＯ）、続いて、通信部３８を制御し、ＣＤ1_1の固有の識別情報ＩＤ（ＣＤ1_1）を検索キーとする検索要求信号を公衆ネットワーク２０を介して楽曲案内情報データベースサーバ２１宛に送信させる（ステップＳ１７´）。

【００４２】

楽曲案内情報データベースサーバ２１は検索要求信号を受けると、付属の楽曲案内情報データベース装置２２に対して検索キーを用いて検索をし、成功すれば識別情報ＩＤ（ＣＤ1_1）に対応して登録された全ての楽曲の楽曲案内情報を読み出し、要求元に返信する。検索不能であったときはエラー通知を返信する。楽曲案内情報またはエラー通知が通信部３８で受信されると、受信情報を入力したＣＰＵ３９はメモリ３６に一時記憶し（ステップＳ１８´）、検索に成功したときは識別情報ＩＤ（ＣＤ1_1）に対応付けて今回入手した全楽曲の楽曲案内情報を楽曲案内情報データベース記憶領域３４ｂに登録させる（ステップＳ１９´、Ｓ２０´。図６（１））。そして、表示部３５にトラックナンバと対応付けて楽曲案内情報をリスト表示する（ステップＳ１６´。図８（１）参照）。これにより、あとで、同じＣＤ1_1をＣＤ－ＲＯＭ読み取り部３０に再セットしたときは、楽曲案内情報データベース記憶領域３４ｂを対象にして楽曲案内情報の高速検索が可能となる。若し、ＣＤ1_1のトラックナンバ０３について音楽ジャンルまたはタイトルが欠けているか間違っており、マニュアルで入力したい場合、キー入力部３３によりトラックナンバ０３を選択し、音楽ジャンルまたはタイトルを入力すると、メモリ３６に一時記憶されるとともに（既にトラックナンバ０３の音楽ジャンルまたはタイトルが記憶されているときは書換えられる）、楽曲案内情報データベース記憶領域３４ｂに登録させる（ステップＳ２１´、Ｓ２２´。図６（２）参照）。そして、表示部３５にトラックナンバと対応付けて楽曲案内情報をリスト表示する（ステップＳ１６´。図８（２）参照）。

【００４３】

（２）ＣＤの再生

ユーザがＣＤ1_1の全楽曲を再生したい場合、キー入力部３３により、ＣＤ全曲の再生操

作をする。すると、ＣＰＵ３９は図１２のステップＳ３０´、Ｓ３１´でＹＥＳと判断し、ＣＤ－ＲＯＭ読み取り部３０を制御して１番目の楽曲の先頭位置をサーチさせサーチが終わると（ステップＳ３３´、Ｓ３４´）、ＣＤ－ＲＯＭ読み取り部３０を制御して１番目の楽曲の先頭位置から記録順に音楽信号のディジタルデータの読み取りを開始させる。ＣＤには音楽信号が非圧縮のディジタルデータで記録されているため、ＣＤ－ＲＯＭ読み取り部３０によりＣＤ１，から記録順に読み取られたディジタルデータはディジタル音楽信号であるが、メモリ３６にトラックナンバ０１の楽曲の音楽ジャンルが一時記憶されている場合は、再生・録音プログラムに含まれている対応する音質補正データに基づき音質補正処理をしたのち音声出力部３７へ出力し、アナログ音楽信号に変換させて出力させる（ステップＳ３５´）。若し、トラックナンバ０１の楽曲の音楽ジャンルが一時記憶されていない場合は予め定められた標準（例えばフラット）の音質補正を施す。

【００４４】

そして、１番目の楽曲の最後まで再生が終わり（ステップＳ３７´でＹＥＳ）、まだ次の楽曲が存在する場合は、ＣＤ－ＲＯＭ読み取り部３０を制御して２番目の楽曲の先頭位置をサーチさせサーチが終わると（ステップＳ３８´、Ｓ３９´、Ｓ３４´）、ＣＤ－ＲＯＭ読み取り部３０を制御して２番目の楽曲の先頭位置から順に音楽信号のディジタルデータの読み取りを開始させる。メモリ３６にトラックナンバ０２の楽曲の音楽ジャンルが一時記憶されている場合は、再生・録音プログラムに含まれている対応する音質補正データに基づき音質補正処理をしたのち音声出力部３７へ出力し、アナログ音楽信号に変換して出力させる（ステップＳ３５´）。以下、同様にして最後の楽曲まで再生させ、最後の楽曲の最後まで再生が終わると、ＣＤ－ＲＯＭ読み取り部３０の読み取りを停止させて再生を停止する（ステップＳ３８´でＮＯ、Ｓ４０´）。

【００４５】

ユーザがＣＤ１，の例えばトラックナンバ０３の楽曲を再生したい場合、キー入力部３３により、トラックナンバ０３のダイレクト選曲再生操作をする。すると、ＣＰＵ３９は、ＣＤ－ＲＯＭ読み取り部３０を制御して３番目の楽曲の先頭位置をサーチさせサーチが終わると（ステップＳ４１´、Ｓ４３´、Ｓ４４´）、ＣＤ－ＲＯＭ読み取り部３０を制御して３番目の楽曲の先頭位置から順に音楽信号のディジタルデータの読み取りを開始させる。ＣＤ－ＲＯＭ読み取り部３０によりＣＤ１，から記録順に読み取られたディジタルデータはディジタル音楽信号であるが、メモリ３６にトラックナンバ０３の楽曲の音楽ジャンルが一時記憶されている場合は、再生・録音プログラムに含まれている対応する音質補正データに基づき音質補正処理をしたのち音声出力部３７へ出力し、アナログ音楽信号に変換させて出力させる（ステップＳ４５´）。若し、トラックナンバ０３の楽曲の音楽ジャンルが一時記憶されていない場合は予め定められた標準（例えばフラット）の音質補正を施す。そして、３番目の楽曲の最後まで再生が終わると、ＣＤ－ＲＯＭ読み取り部３０の読み取りを停止させて再生を停止する（ステップＳ４７´でＹＥＳ、Ｓ４０´）。

このようにして、ユーザが再生楽曲について一々、音楽ジャンルに合わせた音質補正の切り替え操作をしなくても音楽ジャンルに合わせた最適な音質補正が実現される。

【００４６】

（３）ＣＤの録音

例えば、ユーザがＣＤ１，の３番目の楽曲の録音をＭＰＥＧ１レイヤ３の圧縮型式にて録音したい場合、まずキー入力部３３により録音圧縮型式「ＭＰ３」を選択し、トラックナンバ０３を選択して録音操作する。ＣＰＵ３９は録音圧縮型式が選択されると、選択された圧縮型式をメモリ３６に一時記憶する（図１３のステップＳ５０´、Ｓ５１´）。そして、トラックナンバ０３が選択され、録音操作が押されると、ＣＰＵ３９はステップＳ５３´でＹＥＳと判断し、録音対象に選択されたＣＤの楽曲のトラックナンバ、音楽ジャンル、タイトル、録音先のハードディスク３４で割り当てられるトラックナンバとともに録音中であることを表示部３５に表示させる（ステップＳ５４´、Ｓ５５´。図９（１）参照）。そして、ＣＤ－ＲＯＭ読み取り部３０を制御して３番目の楽曲の先頭位置をサーチさせて音楽信号のディジタルデータの読み取りを開始させるとともに、該音楽信号のディ

ジタルデータに対し所望の圧縮型式で圧縮処理をした音楽信号のディジタルデータを、メモリ３６に一時記憶された楽曲案内情報及び録音圧縮型式情報と一緒にハードディスク２４の音楽データ記憶領域３４ｃに記録（録音）させる（ステップＳ５６´、Ｓ５７´）。なお、メモリ３６にＣＤ１ｊのトラックナンバ０３の楽曲の楽曲案内情報が一時記憶されていない場合は、楽曲案内情報をブランクとして記録（録音）させる。３番目の楽曲の最後まで音楽信号のディジタルデータの記録が終わると、読み取りと録音を停止させ、録音中表示も消す（ステップＳ５８´～Ｓ６０´）。

【００４７】

ＣＤ１ｉの他の楽曲についても同様にして録音できる。ＣＤ１ｉを他のＣＤ１ｊと交換したいとき、トレイオープン／クローズキー（図示せず）を押すと、ローディング部３２がトレイ３１をアンローディング移動させる。ＣＤ－ＲＯＭ読み取り部３０からＣＤ１ｉが取り出されると、ＣＰＵ３９は表示部３５に表示させていたトラックナンバ別の楽曲案内情報を消す（図１１のステップＳ２３´、Ｓ２４´）。ＣＤ１ｉをＣＤ１ｊへ交換してＣＤ－ＲＯＭ読み取り部３０へセットさせることで、ＣＤ１ｊに記録された楽曲についても同様に再生及び録音できる。

なお、ハードディスク３４の音楽データ記憶領域３４ｃの各録音楽曲には、トラックナンバが０１から自動で録音順に割当てられるものとする。

【００４８】

（４）ハードディスクに録音された楽曲の再生

例えば、音楽データ記憶領域３４ｃの先頭の録音楽曲を再生したい場合、キー入力部３３により、音楽データ記憶領域３４ｃの上でのトラックナンバ０１を選択して再生操作をする。すると、ＣＰＵ３９は、図１３のステップＳ７０´でＹＥＳと判断し、音楽データ記憶領域３４ｃから先頭の録音楽曲の音楽信号のディジタルデータに対応付けられた楽曲案内情報と録音圧縮型式を読み取って入力し、メモリ３６に一時記憶するとともに表示部３５に表示させる（ステップＳ７２´～Ｓ７４´。図９参照）。そして、ハードディスク３４の音楽データ記憶領域３４ｃから１番目の楽曲の音楽信号のディジタルデータの読み取りを開始し（ステップＳ８１´）、録音圧縮型式に応じた伸長処理（非圧縮の場合は伸長処理はしない）、圧縮で欠落した信号のサンプルデータを補正可能な場合に圧縮音楽補正処理をし（圧縮で欠落した信号のサンプルデータを補正不能な場合と、非圧縮の場合は補正処理をしない）、最後に音楽ジャンルに応じた音質補正データに基づき音質補正処理をして再生した音楽信号のディジタルデータを音声出力部３７へ出力し、アナログ音楽信号に変換して出力させる（ステップＳ９０～Ｓ９２）。

音楽データ記憶領域３４ｃの先頭の録音楽曲の音楽信号の再生が終われば、ＣＰＵ３９は音楽信号のディジタルデータの読み取りを停止し、再生対象の録音楽曲についてのトラックナンバ、楽曲案内情報、録音圧縮型式の表示を消す（ステップＳ８２´～Ｓ８４´）。音楽データ記憶領域３４ｃの他の録音楽曲の再生も同様にして行うことができる。

このようにして、ユーザがハードディスク３４の音楽データ記憶領域３４ｃの録音楽曲を再生させる際に、楽曲毎に一々、音楽ジャンルに合わせた音質補正の切り替え操作をしなくても音楽ジャンルに合わせた最適な音質補正が実現される。

【００４９】

この実施の形態によれば、所望のＣＤをＣＤ－ＲＯＭ読み取り部３０にセットさせると、自動的に楽曲案内情報データベース記憶領域３４ｂと公衆ネットワーク上に設置された楽曲案内情報データベースサーバ２１に対して各楽曲の楽曲案内情報の検索され、楽曲の再生時に音楽ジャンルに最適な音質補正が自動的に掛けられるので、ユーザが一々再生楽曲毎に音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。公衆ネットワーク上に設置された楽曲案内情報データベースサーバ２１に対して検索して得た各楽曲の楽曲案内情報は楽曲案内情報データベース記憶領域３４ｂにＣＤ固有の識別情報と対応付けて追加登録されるので、同じＣＤを次に再生させる場合、公衆ネットワーク２０に再度接続する必要が無くなる。また、マニュアル入力で楽曲案内情報を楽曲案内情報データベース記憶領域３４ｃに追加登録することもできるので、楽曲案内情報データベースサーバ２

１に対する検索に失敗したときにも対応できる。
【００５０】
ＣＤからハードディスク３４の音楽データ記憶領域３４ｃへ楽曲単位で音楽信号のデータを録音する場合、音楽信号のディジタルデータとともに楽曲案内情報が対応付けて一緒に記録され、ハードディスク３４の所望録音楽曲の再生時に、音楽信号のディジタルデータに対応付けられた音楽ジャンルを用いて音楽ジャンルに最適な音質補正が自動的に掛けられる。ユーザがハードディスクの録音楽曲の再生時に、一々音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。ＣＤをＣＤ－ＲＯＭ読み取り部３０にセットしたあとの検索で、ＣＤの全部または幾つかの楽曲について、音楽ジャンルの検索が出来なかった場合でも、ＣＤの或る楽曲をハードディスク３４に録音したい場合、ユーザが当該楽曲の少なくとも音楽ジャンルをマニュアル入力しておけば、所望楽曲の音楽信号のディジタルデータに対応付けて音楽ジャンルを一緒にハードディスク３４に記録させることができ、あとで当該録音楽曲を再生させる度に一々音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。
【００５１】
なお、上記した各実施の形態では、楽曲の音楽信号のディジタルデータと管理情報の記録済の記録媒体としてＣＤを例に挙げたが、ＤＶＤ（ディジタルバーサタイルディスク）オーディオの如く、他の種類の媒体にも同様に適用することができる。
また、録音対象としてハードディスクで構成された大容量記録媒体を例に挙げたが、ＣＤ－Ｒ、ＤＶＤ－ＲＡＭ、ＤＶＤ－Ｒ、半導体メモリカードなどを用いても良い。
また、楽曲案内情報の検索キーとして、ＣＤ固有の識別情報ＩＤ（ＣＤ）を用いたが、ＣＤの楽曲単位の固有の識別情報ＩＤ（ＣＤ－ＴＮＯ）を用いてもよい、識別情報ＩＤ（ＣＤ－ＴＮＯ）はＣＤ固有の識別情報ＩＤ（ＣＤ）の最後にトラックナンバを付加することで簡単に作成できる。ＣＤが複数の楽曲を含む場合、楽曲案内情報データベース記憶部１１または楽曲案内情報データベースサーバ２１を対象にして１楽曲分ずつ検索することで、ＣＤの全楽曲の楽曲案内情報を入手できる。
また、図１中の圧縮音楽補正部１７を省略するようにしたり、図１４中のステップＳ９１の処理を省略するようにしても良い。
【００５２】
また、上記した各実施の形態では、再生楽曲の音楽ジャンルに最適な音質補正を行うようにしたが、図１の第１の実施の形態において、音質補正部を音場補正部に置き換え、内部メモリには音楽ジャンル別の最適な音場補正データ（残響時間データ、残響音量データなど）を記憶しておき、図３のステップＳ３５、Ｓ４５、図５のステップＳ８０に「音質補正」とあるのを「音場補正」と変えることで、再生楽曲の音楽ジャンルに対応する音場補正データを読み出し、音場補正部に設定するようにして、ユーザが音楽ジャンルの選択操作をしなくても再生楽曲に最適な音場補正（残響時間、残響音量などの最適化）が自動的に掛かるようにしたり、図１０の第２の実施の形態において、再生・録音プログラムに音楽ジャンル別の最適な音場補正データを含めておき、図１２のステップＳ３５′、Ｓ４５′、図１４のステップＳ９２に「音質補正」とあるのを「音場補正」と変えることで、再生楽曲の音楽ジャンルに対応する音場補正データを用いて、音楽信号に対する音場補正処理を行うようにして、ユーザが音楽ジャンルの選択操作をしなくても再生楽曲に最適な音場補正が自動的に掛かるようにしても良い。
【００５３】
【発明の効果】
本発明によれば、１または複数の楽曲の音楽信号が記録済の記録媒体に基づき、自動的に楽曲案内情報データベースに対して各楽曲の楽曲案内情報が検索され、楽曲の再生時に音楽ジャンルに最適な音質または音場の補正が自動的に掛けられるので、ユーザが一々再生楽曲毎に音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。
また、他の発明によれば、１または複数の楽曲の音楽信号が記録済の記録媒体から他の記録媒体に所望楽曲を記録する際に、音楽ジャンル情報を一緒に記録するようにしたので、

当該他の記録媒体の録音楽曲を再生する場合にも、音楽ジャンルに最適な音質または音場の補正を自動的に掛けることが可能となり、ユーザが一々当該他の記録媒体の録音楽曲を再生する度に、録音楽曲の音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。
また、他の発明によれば、音楽信号に音楽ジャンル情報が対応付けて記録された記録媒体を再生する際、音楽ジャンルに最適な音質または音場の補正を自動的に掛けるようにしたので、ユーザが一々記録媒体の楽曲を再生する度に、楽曲の音楽ジャンルに合わせた音質補正の切り替え操作をしなくても済む。

【図面の簡単な説明】

【図１】本発明の第１の実施の形態に係るオーディオ機器の構成を示すブロック図である。

【図２】図１中のコントロール部によるＣＤの再生・録音制御処理を示すフローチャートである。

【図３】図１中のコントロール部によるＣＤの再生・録音制御処理を示すフローチャートである。

【図４】図１中のコントロール部によるＣＤの再生・録音制御処理を示すフローチャートである。

【図５】図１中のコントロール部による録音楽曲の再生制御処理を示すフローチャートである。

【図６】図１中の楽曲案内情報データベース記憶部の記憶内容の説明図である。

【図７】図１中の楽曲案内情報データベース装置の記憶内容の説明図である。

【図８】図１中の表示部の表示例の説明図である。

【図９】図１中の表示部の表示例の説明図である。

【図１０】本発明の第２の実施の形態に係るパーソナルコンピュータの構成を示すブロック図である。

【図１１】図１０中のＣＰＵによるＣＤの再生・録音処理を示すフローチャートである。

【図１２】図１０中のＣＰＵによるＣＤの再生・録音処理を示すフローチャートである。

【図１３】図１０中のＣＰＵによるＣＤの再生・録音処理を示すフローチャートである。

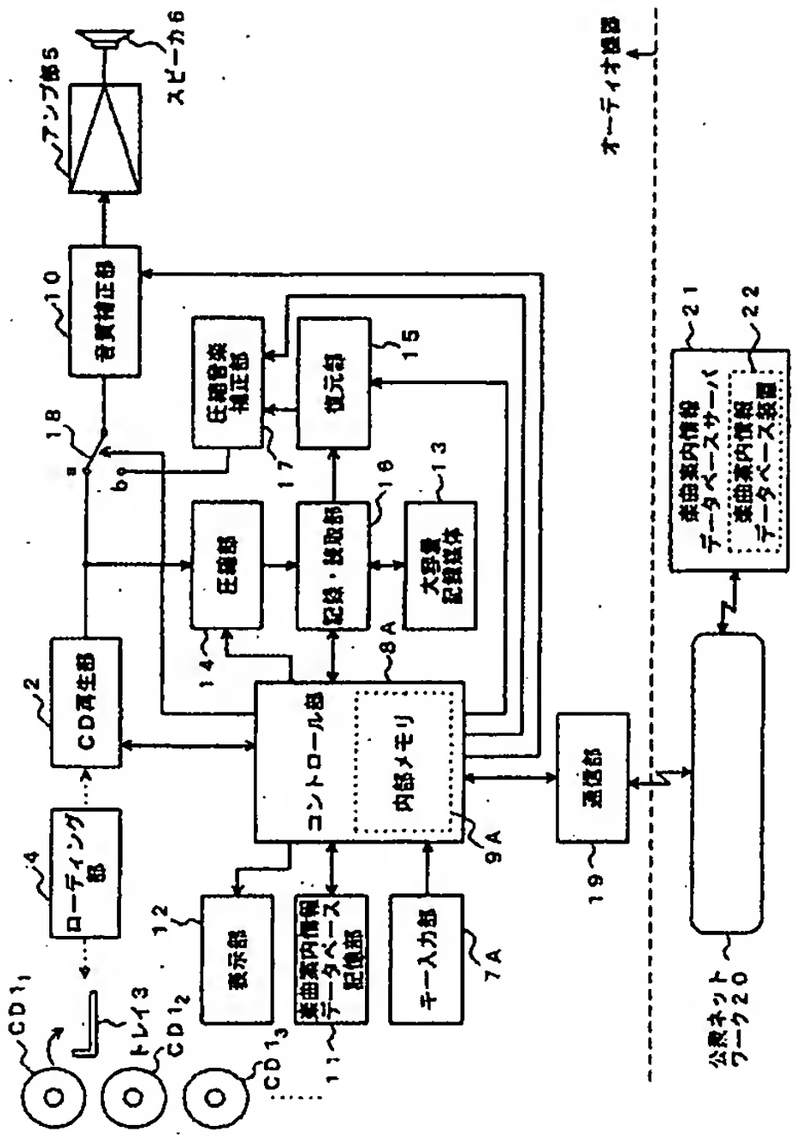
【図１４】図１０中のＣＰＵによる録音楽曲の再生処理を示すフローチャートである。

【図１５】オーディオ機器の構成例を示すブロック図である。

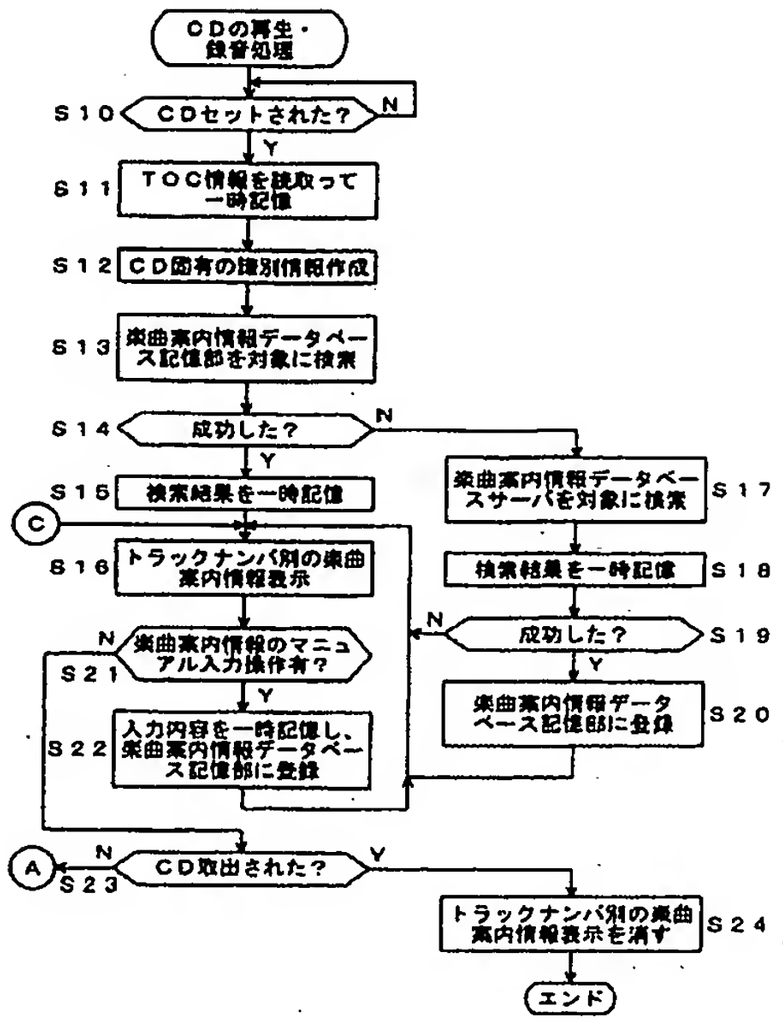
【符号の説明】

1_1、1_2、1_3、・・　ＣＤ
２　ＣＤ再生部
５　アンプ部
６　スピーカ
７Ａ、３３　キー入力部
８Ａ　コントロール部
９Ａ　内部メモリ
１０　音質補正部
１１　楽曲案内情報データベース記憶部
１２、３５　表示部
１３　大容量記録媒体
１６　記録・読み取り部
１８　スイッチ
１９、３８　通信部
２０　公衆ネットワーク
２１　楽曲案内情報データベースサーバ
２２　楽曲案内情報データベース装置
３０　ＣＤ－ＲＯＭ読み取り部
３１　トレイ
３２　ローディング部
３４　ハードディスク
３４ａ　プログラム格納領域
３４ｂ　楽曲案内情報データベース記憶領域
３４ｃ　音楽データ記憶領域
３６　メモリ
３７　音声出力部
１００　ＣＤ－ＲＯＭ
３００　パーソナルコンピュータ

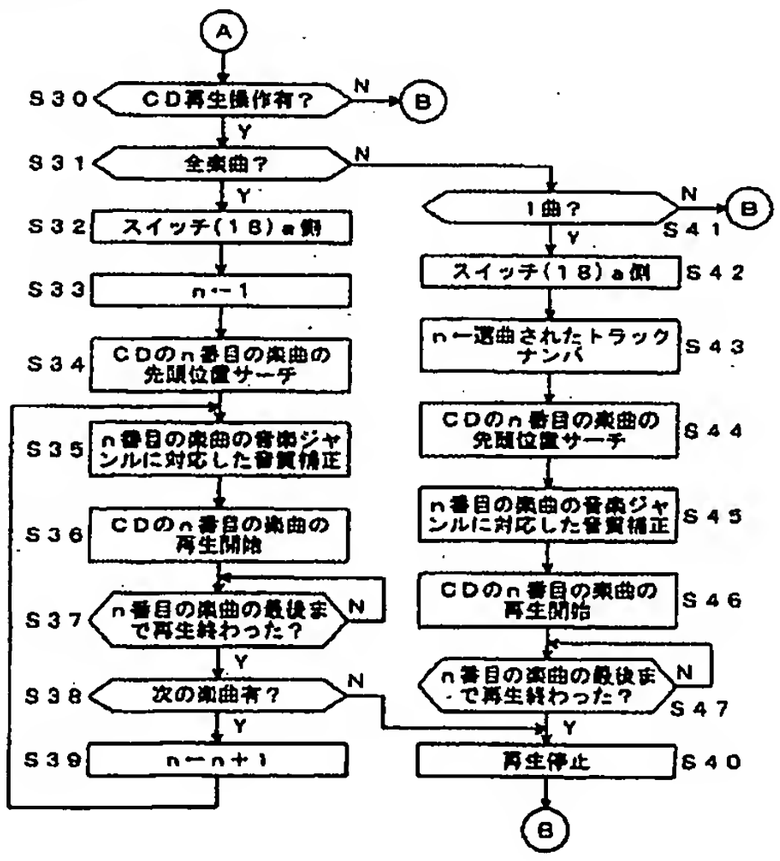
【図１】


スピーカ6
アンプ部5
音質補正部
10
圧縮音質補正部
復元部
15
18
17
16
13
圧縮部
記録・読取部
大容量記録媒体
14
8A
CD再生部
2
コントロール部
内部メモリ
9A
通信部
19
ローディング部
4
表示部
12
楽曲案内情報データベース記憶部
11
キー入力部
7A
CD1 1
トレイ3
CD1 2
CD1 3
オーディオ装置
楽曲案内情報データベースサーバ
21
楽曲案内情報データベース装置
22
公衆ネットワーク20

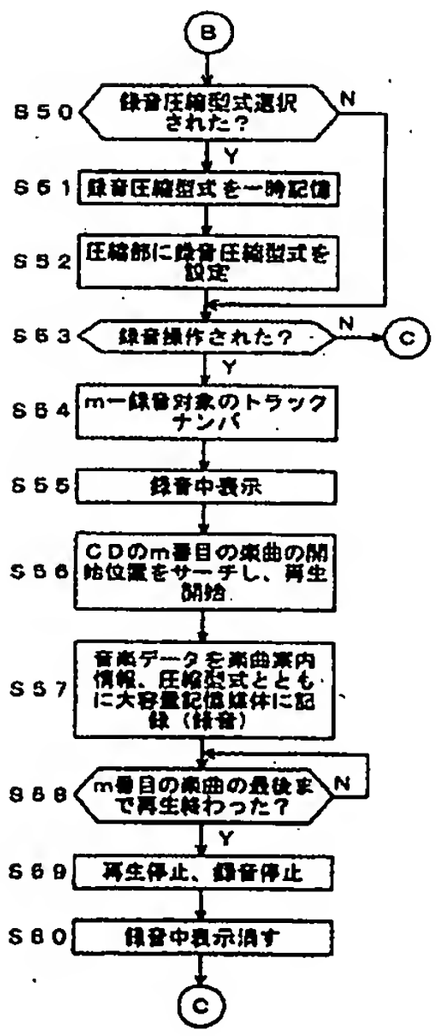
【図２】


CDの再生・録音処理
S10 CDセットされた？ N
Y
S11 TOC情報を読取って一時記憶
S12 CD固有の識別情報作成
S13 楽曲案内情報データベース記憶部を対象に検索
S14 成功した？ N
Y
S15 検索結果を一時記憶
C
S16 トラックナンバ別の楽曲案内情報表示
N S21 楽曲案内情報のマニュアル入力操作有？
Y
S22 入力内容を一時記憶し、楽曲案内情報データベース記憶部に登録
A
N S23 CD取出された？ Y
S17 楽曲案内情報データベースサーバを対象に検索
S18 検索結果を一時記憶
N S19 成功した？
Y
S20 楽曲案内情報データベース記憶部に登録
S24 トラックナンバ別の楽曲案内情報表示を消す
エンド

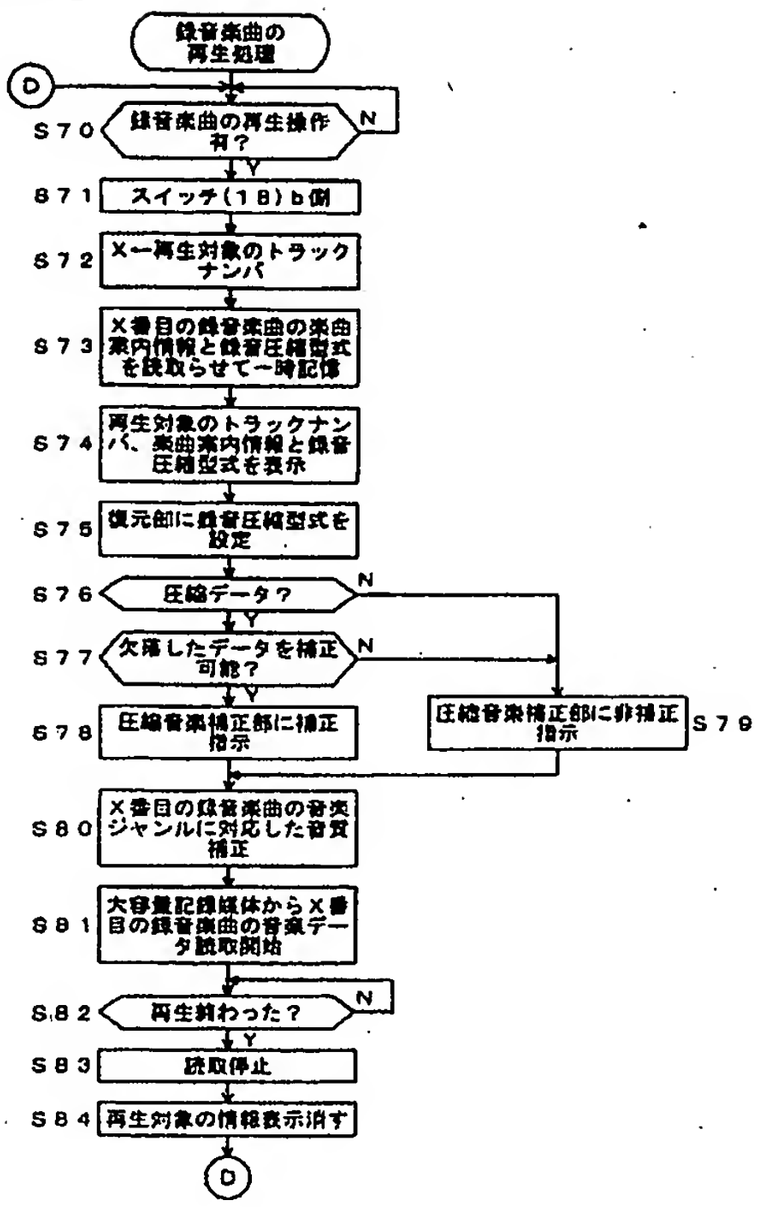
【図３】


A
S30 CD再生操作有？ N B
Y
S31 全楽曲？ N
Y
S32 スイッチ(18)a側
S33 n←1
S34 CDのn番目の楽曲の先頭位置サーチ
S35 n番目の楽曲の音楽ジャンルに対応した音質補正
S36 CDのn番目の楽曲の再生開始
S37 n番目の楽曲の最後まで再生終わった？ N
Y
S38 次の楽曲有？ N
Y
S39 n←n+1
S41 1曲？ N B
Y
S42 スイッチ(18)a側
S43 n←選曲されたトラックナンバ
S44 CDのn番目の楽曲の先頭位置サーチ
S45 n番目の楽曲の音楽ジャンルに対応した音質補正
S46 CDのn番目の楽曲の再生開始
S47 n番目の楽曲の最後まで再生終わった？ N
Y
S40 再生停止
B

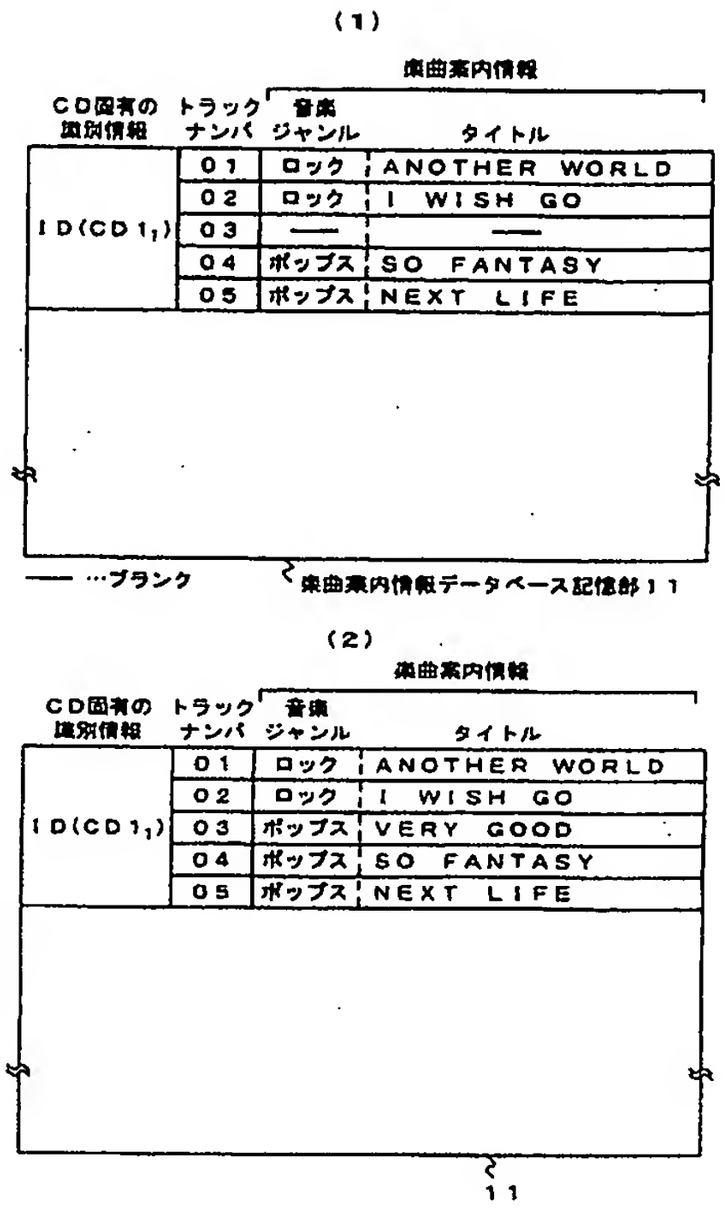
【図４】


B
S50 録音圧縮型式選択された？ N
Y
S51 録音圧縮型式を一時記憶
S52 圧縮部に録音圧縮型式を設定
S53 録音操作された？ N C
Y
S54 m←録音対象のトラックナンバ
S55 録音中表示
S56 CDのm番目の楽曲の開始位置をサーチし、再生開始
S57 音楽データを楽曲案内情報、圧縮型式とともに大容量記憶媒体に記録（録音）
S58 m番目の楽曲の最後まで再生終わった？ N
Y
S59 再生停止、録音停止
S60 録音中表示消す
C

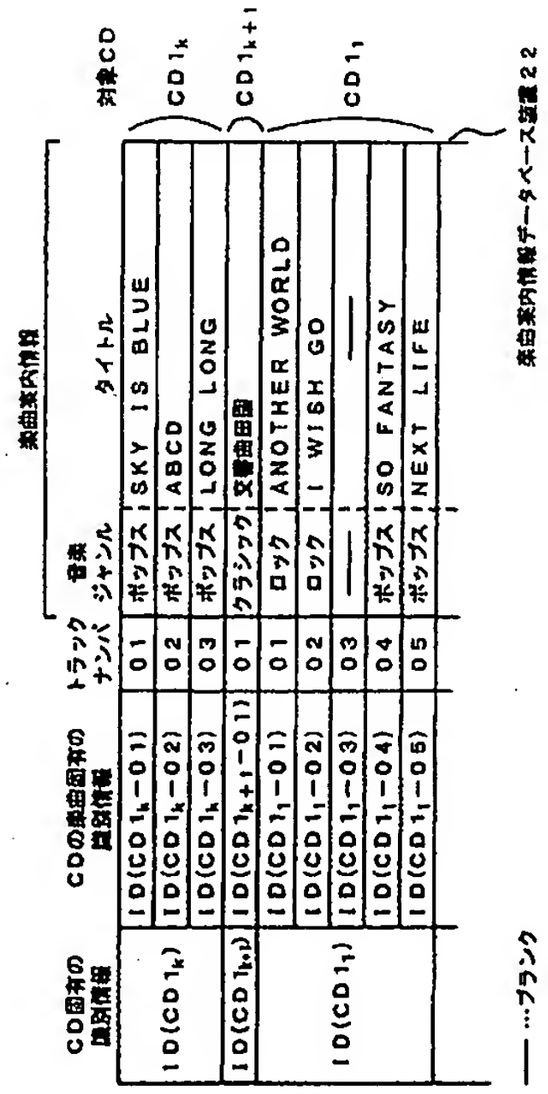
【図５】


録音楽曲の再生処理
D
S70 録音楽曲の再生操作有？ N Y
S71 スイッチ(18)b側
S72 X←再生対象のトラックナンバ
S73 X番目の録音楽曲の楽曲案内情報と録音圧縮型式を読取らせて一時記憶
S74 再生対象のトラックナンバ、楽曲案内情報と録音圧縮型式を表示
S75 復元部に録音圧縮型式を設定
S76 圧縮データ？ N Y
S77 欠落したデータを補正可能？ N Y
S78 圧縮音楽補正部に補正指示
S79 圧縮音楽補正部に非補正指示
S80 X番目の録音楽曲の音楽ジャンルに対応した音質補正
S81 大容量記録媒体からX番目の録音楽曲の音楽データ読取開始
S82 再生終わった？ N Y
S83 読取停止
S84 再生対象の情報表示消す
D

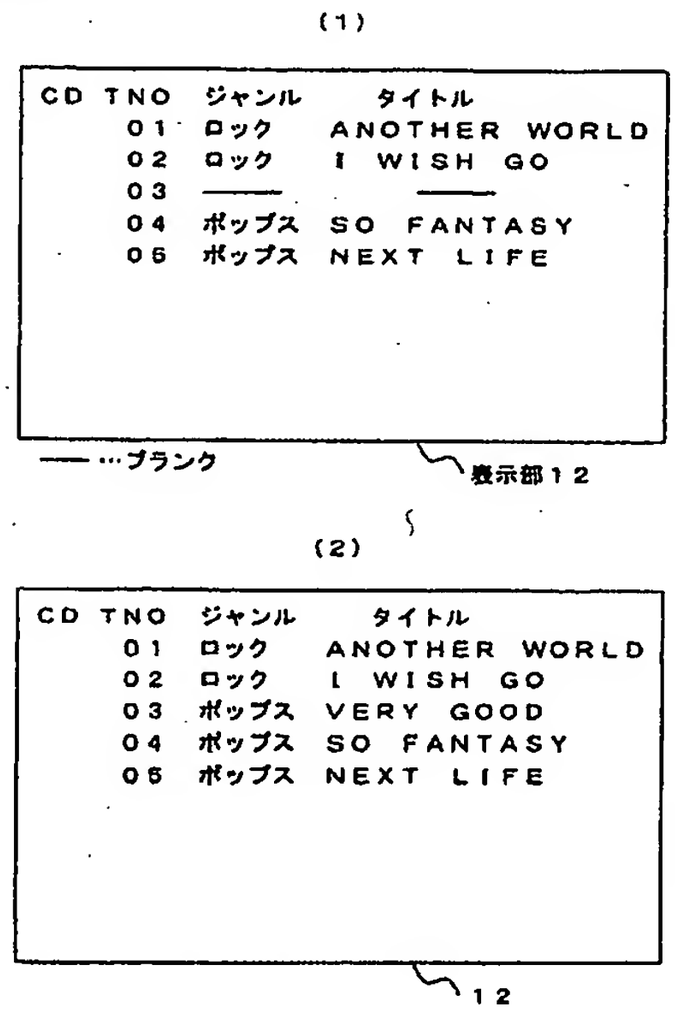
【図６】


(1)
楽曲案内情報
CD固有の識別情報
トラックナンバ
音楽ジャンル
タイトル
ID(CD1₁)
01 ロック ANOTHER WORLD
02 ロック I WISH GO
03 —— ——
04 ポップス SO FANTASY
05 ポップス NEXT LIFE
—— …ブランク
楽曲案内情報データベース記憶部11
(2)
楽曲案内情報
CD固有の識別情報
トラックナンバ
音楽ジャンル
タイトル
ID(CD1₁)
01 ロック ANOTHER WORLD
02 ロック I WISH GO
03 ポップス VERY GOOD
04 ポップス SO FANTASY
05 ポップス NEXT LIFE
11

【図７】


対象CD
CD1k
CD1k+1
CD11
楽曲案内情報
タイトル
音楽ジャンル
トラックナンバ
CDの楽曲固有の識別情報
CD固有の識別情報
SKY IS BLUE
ABCD
LONG LONG
交響曲第
ANOTHER WORLD
I WISH GO
SO FANTASY
NEXT LIFE
ID(CD1k−01)
ID(CD1k−02)
ID(CD1k−03)
ID(CD1k+1−01)
ID(CD11−01)
ID(CD11−02)
ID(CD11−03)
ID(CD11−04)
ID(CD11−05)
ID(CD1k)
ID(CD1k+1)
ID(CD11)
—…ブランク
楽曲案内情報データベース装置22

【図８】


(1)
CD TNO ジャンル タイトル
01 ロック ANOTHER WORLD
02 ロック I WISH GO
03 —— ——
04 ポップス SO FANTASY
05 ポップス NEXT LIFE
—…ブランク
表示部12
(2)
CD TNO ジャンル タイトル
01 ロック ANOTHER WORLD
02 ロック I WISH GO
03 ポップス VERY GOOD
04 ポップス SO FANTASY
05 ポップス NEXT LIFE
12

【図９】

(1)

CD TNO	ジャンル	タイトル
01	ロック	ANOTHER WORLD
02	ロック	I WISH GO
03	ポップス	VERY GOOD
04	ポップス	SO FANTASY
05	ポップス	NEXT LIFE

	CD	ハードディスク
ハードディスク録音中	TNO →	TNO
	03	01

圧縮形式MP３

12 表示部

(2)

CD TNO	ジャンル	タイトル
01	ロック	ANOTHER WORLD
02	ロック	I WISH GO
03	ポップス	VERY GOOD
04	ポップス	SO FANTASY
05	ポップス	NEXT LIFE

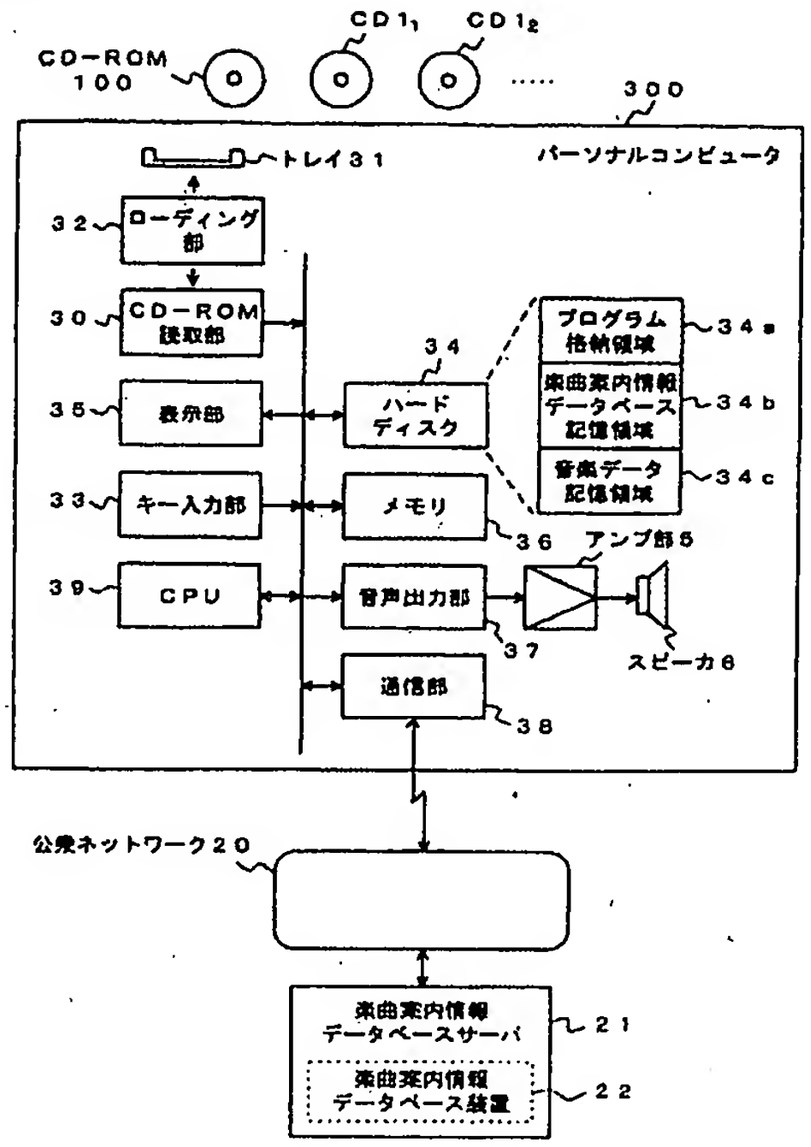
ハードディスク再生中

TNO	ジャンル	タイトル
01	ポップス	ANOTHER WORLD

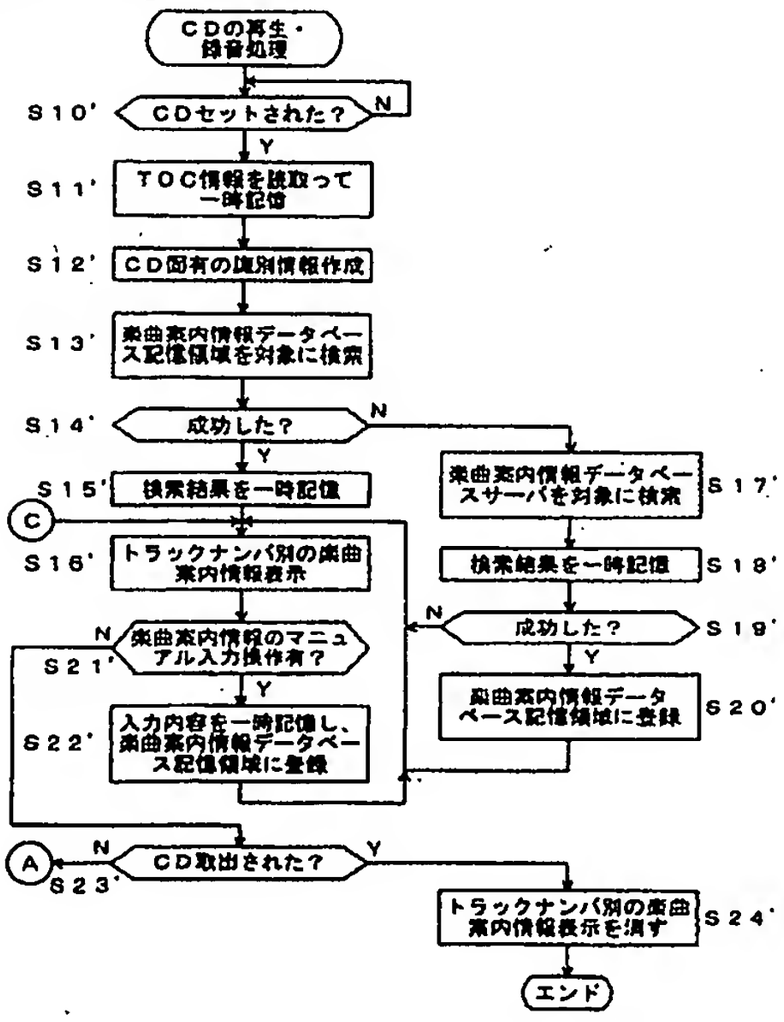
圧縮形式MP３

12

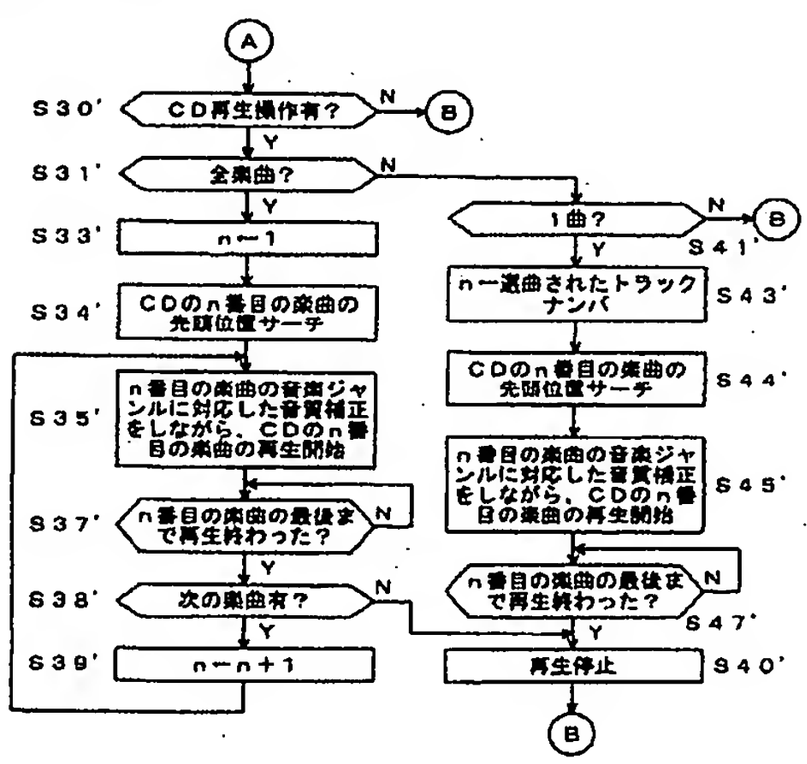
【図１０】



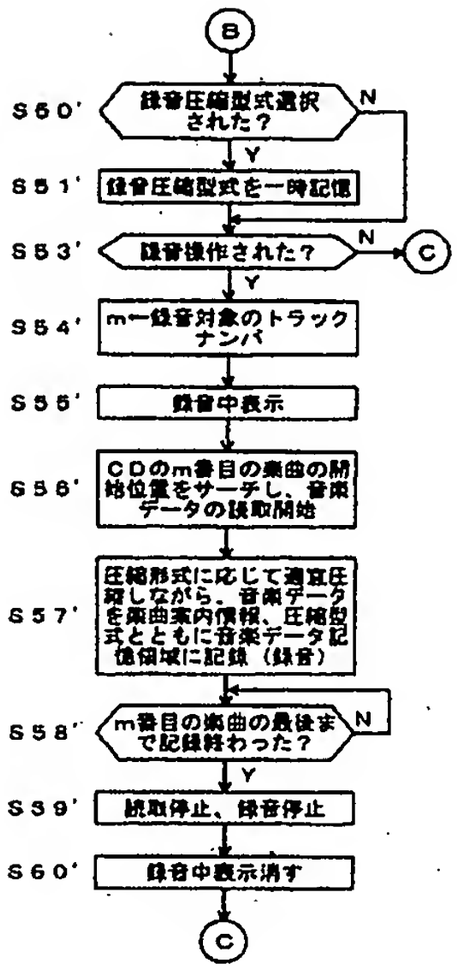
【図１１】



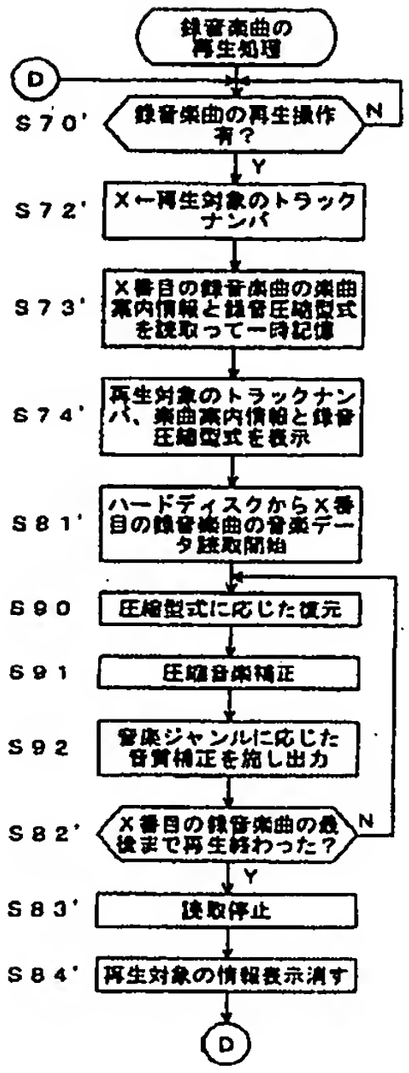
【図１２】



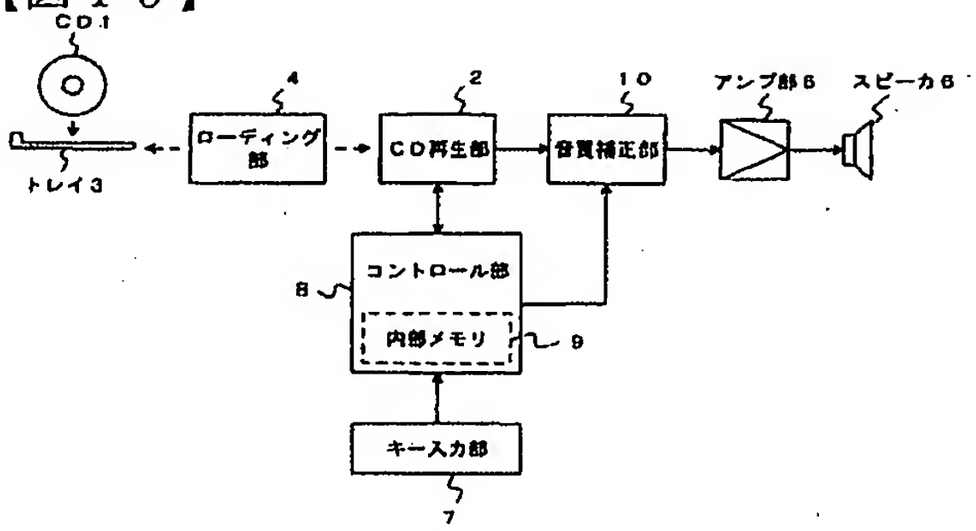
【図１３】


B
S50'
録音圧縮型式選択された？
N
Y
S51'
録音圧縮型式を一時記憶
S53'
録音操作された？
N
C
Y
S54'
m←録音対象のトラックナンバ
S55'
録音中表示
S56'
CDのm番目の楽曲の開始位置をサーチし、音楽データの読取開始
S57'
圧縮形式に応じて適宜圧縮しながら、音楽データを楽曲案内情報、圧縮型式とともに音楽データ記憶領域に記録（録音）
S58'
m番目の楽曲の最後まで記録終わった？
N
Y
S59'
読取停止、録音停止
S60'
録音中表示消す
C

【図１４】


録音楽曲の再生処理
D
S70'
録音楽曲の再生操作有？
N
Y
S72'
X←再生対象のトラックナンバ
S73'
X番目の録音楽曲の楽曲案内情報と録音圧縮型式を読取って一時記憶
S74'
再生対象のトラックナンバ、楽曲案内情報と録音圧縮型式を表示
S81'
ハードディスクからX番目の録音楽曲の音楽データ読取開始
S90
圧縮型式に応じた復元
S91
圧縮音楽補正
S92
音楽ジャンルに応じた音質補正を施し出力
S82'
X番目の録音楽曲の最後まで再生終わった？
N
Y
S83'
読取停止
S84'
再生対象の情報表示消す
D

【図１５】


CD 1
トレイ 3
4
ローディング部
2
CD再生部
10
音質補正部
アンプ部 6
スピーカ 6
コントロール部
8
内部メモリ
9
キー入力部
7

フロントページの続き

(51)Int.Cl.'	F I		テーマコード（参考）
	H04R	3/04	
	G10K	15/00	M